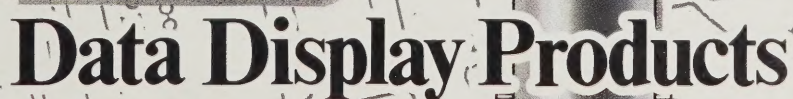


PACKAGED LEDs

NOTE:
DDP's New Area Code
(310) 640-0442
Fax (310) 640-7639

DDP
Data Display Products

NOTE:
DDP's New Area Code
(310) 640-0442
Fax (310) 640-7639





Corporate Management Team

Since 1970, Data Display Products has pioneered the development of DDP® LEDs as replacements for incandescent lamps, panel-mounted lights, indicator lights and lamps for military applications.

Our experienced engineers provide quick and innovative answers to customer requests. We were the first to introduce long-life electronic panel lights and Super-Brite LED Panel Lamps that exceed the performance of incandescents. We were also the

first to provide uniform light from an LED that could be seen from almost any angle.

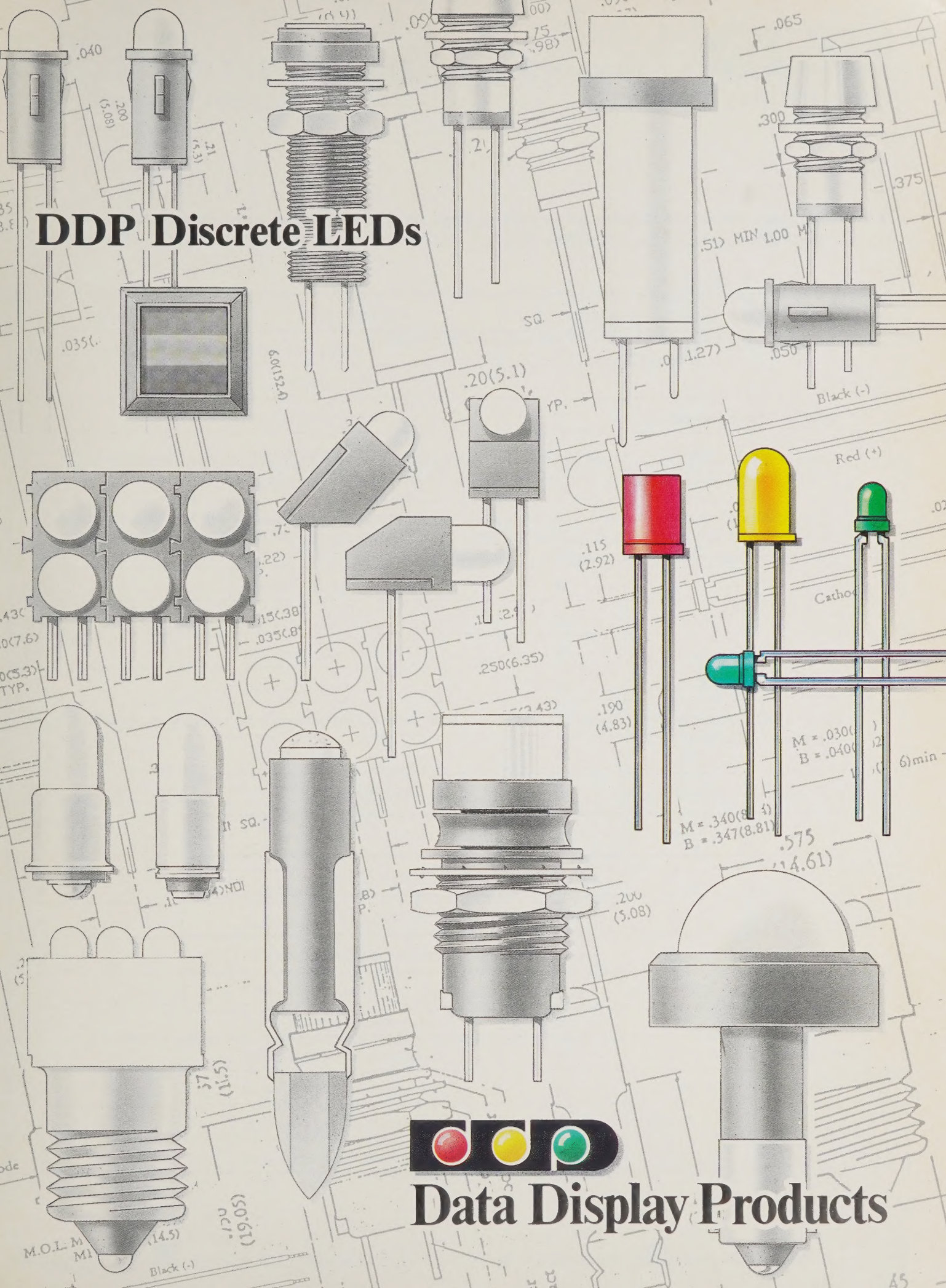
Data Display Products is located in the industrialized city of El Segundo, CA, conveniently near the Los Angeles International Airport. Our new 18,000 square foot facility includes a dedicated incoming and final Quality Control Department, vast production area, machine shop, engineering lab and stocking facility. These assure the high level of excellence found in our LEDs.

Our highly qualified list of key personnel include engineers and business specialists in all top management positions. Many of the employees in management, production and engineering have been with the company for over 10 years - quite an accomplishment for a company in its 20th year. All this plus an enthusiastic sales force contribute to DDP's continued growth in sales and earnings.

DDP® is represented by a network of technically knowledgeable Representatives and Distributors. This team of sales and distribution presents a very effective marketing force in the field. Frequent world-wide travels by our top management team keep these professionals up to date on all of our latest products and sales tools.

The future holds many exciting advancements for the electronics industry and DDP® is an integral element in that excitement. We pledge that our continuous new product development will always reflect the needs of our growing customer base.

**DDP L.E.D.s The Way
Celebrating Twenty Years**

[illegible][illegible]



Data Display Products

Discrete LEDs

Data Display Products' Discrete LEDs offer a range of specifications to cover most Packaged LED applications. Among these, DDP offers:

- Bi-Color
- Tri-Color
- Integrated Resistors
- LEDs with luminous intensities up to 3 Candela
- ... and much more

How to Order Discrete LEDs

If you know the DDP part number you require, please turn to the alpha-numeric product listing on pages 1 - 5 ■ Section and locate your part number by the Model. Check the page(s) listed.

If you do not know the part number, please turn to the Table of Contents on page 6 ■ Section. From the headings locate the size LED you require and from the sub-headings choose the encapsulation required. Turn to the page(s) listed and select your part number.

Catalog Format

Data Display Products 1991 Catalog is divided into four color coded sections. The catalog is available in the following formats:

Section	Color Code	Description
A	■	Discrete LEDs
B	■	PCB Mount & Discrete LEDs
C	■	Panel-Mount & Discrete LEDs
D	■	Incandescent Replacement & Discrete LEDs
E	■ ■ ■ ■	Complete Catalog

To order any section, please call or fax the factory or your local representative. See pages 7 and 8 for the fax form.





ALPHA-NUMERIC LISTING

Data Display Products

The following is an alpha-numeric listing of DDP's 1991 catalog. Discrete LEDs ■ Section, PCB Mount LEDs ■ Section, Panel-Mount LEDs ■ Section, and Incandescent Replacement Lamps ■ Section.

Model	Description	Color Code	Pages
.312 ADP/.375 ADP	Panel-Mount LEDs	■	28
31/34	Panel-Mount LEDs	■	22-23
41/44/46	Panel-Mount LEDs	■	24-25
51/53/56	Panel-Mount LEDs	■	36-39
74	Panel-Mount LEDs	■	50
91/94/96	Panel-Mount LEDs	■	30-33
125	Discrete LEDs	■	9-10, 12-14
125K	Discrete LEDs	■	11
180	Discrete LEDs	■	15-16
190	Discrete LEDs	■	17-18
200	Discrete LEDs	■	19-23, 25-29
200D	Discrete LEDs	■	24
200K	Discrete LEDs	■	30
305	Panel-Mount LEDs	■	22-23
405/461/464	Panel-Mount LEDs	■	24-25
561/564	Panel-Mount LEDs	■	36-39
800	Panel-Mount LEDs	■	48
905	Panel-Mount LEDs	■	30-31
961/964	Panel-Mount LEDs	■	30-33
1732	Panel-Mount LEDs	■	49
1SB	Incandescent Replacement	■	74-75, 78
1SBL	Incandescent Replacement	■	76-77, 79
2SB	Incandescent Replacement	■	80-81, 84
2SBL	Incandescent Replacement	■	82-83, 85
5SB	Incandescent Replacement	■	86-87, 90





Data Display Products

ALPHA-NUMERIC LISTING

Model	Description	Color Code	Pages
5TSB	Incandescent Replacement	■	72-73
6TSB	Incandescent Replacement	■	95-96
46SB	Incandescent Replacement	■	70
55KSB	Incandescent Replacement	■	71
55SB	Incandescent Replacement	■	92-94
55SSB	Incandescent Replacement	■	88-89, 91
Bi-Polar	Incandescent Replacement	■	69
BP125	Incandescent Replacement	■	13
BP182/BP183	Incandescent Replacement	■	17
BP202	Incandescent Replacement	■	25-27
BP203	Incandescent Replacement	■	26-27
BPS-1	Incandescent Replacement	■	17, 25, 27
CS24/CS24T	Panel-Mount LEDs	■	29
CSH40	Panel-Mount LEDs	■	29
CSH90	Panel-Mount LEDs	■	34
DCB500	Incandescent Replacement	■	67-68
F41/F44/F46/F461/F464	Panel-Mount LEDs	■	26-27
L92	Panel-Mount LEDs	■	34
MB180	Incandescent Replacement	■	16
MB200	Incandescent Replacement	■	22-24
MB400/MB400C	Incandescent Replacement	■	41-43, 45-47
MBL400/MBL400C	Incandescent Replacement	■	41-43
MB401/MB401C	Incandescent Replacement	■	44
MB500/MB500C	Incandescent Replacement	■	62-63
MB800/MB800C	Incandescent Replacement	■	61
MF125/MF125C	Incandescent Replacement	■	14-15
MF180/MF180C	Incandescent Replacement	■	18



ALPHA-NUMERIC LISTING

Data Display Products

Model	Description	Color Code	Pages
MF200/MF200C	Incandescent Replacement	■	28-30
MF400/MF400C	Incandescent Replacement	■	48-53
MFL400/MFL400C	Incandescent Replacement	■	48-50
MF61	Incandescent Replacement	■	31
MFS1-B	Incandescent Replacement	■	31
MG180/MG180C	Incandescent Replacement	■	19
MG200/MG200C	Incandescent Replacement	■	32-34
MS180/MS180C	Incandescent Replacement	■	20
MS200/MS200C	Incandescent Replacement	■	35-37
MS400/MS400C	Incandescent Replacement	■	54-59
MSL400/MSL400C	Incandescent Replacement	■	54-56
MS500/MS500C	Incandescent Replacement	■	64-65
MS800/MS800C	Incandescent Replacement	■	60
MS900	Incandescent Replacement	■	66
NW3	Panel-Mount LEDs	■	23
NW4	Panel-Mount LEDs	■	29
NW5	Panel-Mount LEDs	■	39
NW9	Panel-Mount LEDs	■	33
P44	Panel-Mount LEDs	■	12
P205	Panel-Mount LEDs	■	11
P405	Panel-Mount LEDs	■	18-19
P406	Panel-Mount LEDs	■	14
P407	Panel-Mount LEDs	■	16
PC3	Panel-Mount LEDs	■	7
PCA190	PCB Mount LEDs	■	8-9
PCA200	PCB Mount LEDs	■	10-11
PCH125	PCB Mount LEDs	■	6-7



Data Display Products

ALPHA-NUMERIC LISTING

Model	Description	Color Code	Pages
PCH125-200	PCB Mount LEDs	■	6-7
PCH190	PCB Mount LEDs	■	8-9
PCH200	PCB Mount LEDs	■	10-11
PCH125(2-8)-200	PCB Mount LEDs	■	16-17
PCL145	PCB Mount LEDs	■	8-9
PCL190/PCL190C	PCB Mount LEDs	■	8
PCL191-200	PCB Mount LEDs	■	8-9
PCL200/PCL200C	PCB Mount LEDs	■	10
PCL245	PCB Mount LEDs	■	10-11
PCL201-200	PCB Mount LEDs	■	10-11
PCL1254	PCB Mount LEDs	■	15
PCL1904	PCB Mount LEDs	■	18
PCL2004	PCB Mount LEDs	■	20
PCLR190	PCB Mount LEDs	■	8-9
PCLR200	PCB Mount LEDs	■	10-11
PCLR190(2-16)	PCB Mount LEDs	■	19
PCLR200(2-16)	PCB Mount LEDs	■	21
PCLT195	PCB Mount LEDs	■	14
PCLT195(2-16)	PCB Mount LEDs	■	22
PCO80	PCB Mount LEDs	■	4-5
PCO84	PCB Mount LEDs	■	4-5
PCT190	PCB Mount LEDs	■	14
PCT200	PCB Mount LEDs	■	12-13
PCV125	PCB Mount LEDs	■	6-7
PCV125-200	PCB Mount LEDs	■	6-7
PCV190	PCB Mount LEDs	■	8-9
PCV200	PCB Mount LEDs	■	10-11





Data Display Products

ALPHA-NUMERIC LISTING


























Model	Description	Color Code	Pages
PCV125(2-8)-200	PCB Mount LEDs		16-17
PM180	Panel-Mount LEDs		9
PM190	Panel-Mount LEDs		10
PMC-2/PMC-3	Panel-Mount LEDs		5
PML30/PML40	Panel-Mount LEDs		6
PMR125	Panel-Mount LEDs		40-41, 44-45
PMR200	Panel-Mount LEDs		42-43, 46-47
PR44	Panel-Mount LEDs		13
PR405	Panel-Mount LEDs		20-21
PR406	Panel-Mount LEDs		15
PR407	Panel-Mount LEDs		17
PS40/PS44	Panel-Mount LEDs		28
PS90/PS90T	Panel-Mount LEDs		34-35
PS200	Panel-Mount LEDs		8
RC90	Panel-Mount LEDs		34
SH40	Panel-Mount LEDs		29
SH90	Panel-Mount LEDs		34
SPR/SPRN	Discrete LEDs		10
SQ375	Panel-Mount LEDs		51
TC3	Panel-Mount LEDs		23
TC4	Panel-Mount LEDs		29
TC5	Panel-Mount LEDs		39
TC9	Panel-Mount LEDs		33
WB180	Incandescent Replacement		21
WB200	Incandescent Replacement		38-40





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Integrated Resistors, Diffused	12
Non-Diffused	13
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T-1 $\frac{3}{4}$ LEDs

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Data Display Products

DDP FAX FORM

Please mail or fax this form to our factory if you require additional information about packaged LEDs from Data Display Products.

TO: DDP Applications Engineer

DATE: _____

FROM: _____

RE: Packaged LED Information

1. ☐ Please add my name to the DDP mailing list.
2. ☐ I need application assistance, please call me at () _____.
3. ☐ I have a specific product inquiry for a DDP packaged LED found on page ____ in the
■ ■ ■ ■ (circle one) section of this catalog.

My inquiry is for:

☐ A current application

☐ A future application

☐ Reference Only

4. Please send me the following literature:

☐ PCB Mount LEDs & Discrete LEDs ■ Section

☐ Panel Mount LEDs & Discrete LEDs ■ Section

☐ Incandescent Lamp Replacement LEDs ■ Section

Name/Title: _____

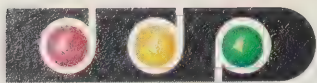
Company: _____

Address: _____

City: _____ State: _____

Zip: _____ Telephone: _____

Please Fax or fold, seal and mail.

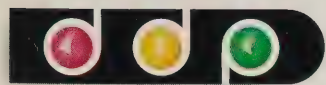


Data Display Products

PLACE
STAMP
HERE

Data Display Products
445 South Douglas Street
El Segundo, California 90245-4630





Data Display Products

T-1 LEDs

DIFFUSED

Red, Amber, Yellow or Green

Diffused Tinted Encapsulations

Luminous Intensities from 2 to 100 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle 2 $\theta_{1/2}$	Peak Wavelength λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
125-MR	M	RED	6/8	90	635	1.7/2.0/3.0	120	1.8	30	90	-55/+100
125-MA		AMB	5/9	90	585	1.7/2.1/3.0	120	1.8	30	90	-55/+100
125-MG		GRN	2/5	90	562	1.7/2.2/3.0	120	1.8	30	90	-55/+100
125-BR	B	RED	6/8	60	635	1.5/2.2/3.0	135	1.8	30	90	-55/+100
125-BA		AMB	6/8	60	583	1.5/2.2/3.0	85	1.6 ⁽¹⁾	20	60	-55/+100
125-BG		GRN	5/8	60	565	1.5/2.3/3.0	135	1.8	30	90	-55/+100
125-ER	E	RED	24/48	44	660	1.5/1.7/2.0	100	1.8	50	300	-30/+85
125-EA		AMB	12/18	44	605	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-EY		YEL	20/30	44	570	1.7/2.1/2.5	125	1.8	40	100	-30/+85
125-EG		GRN	4/8	44	555	1.7/2.1/2.5	125	1.8	40	100	-30/+85
125-UR	U	RED	60/100 ⁽²⁾	44	660	1.5/1.8/2.0	100	1.8	50	300	-30/+85
125-UA		AMB	18/30 ⁽³⁾	44	605	1.7/2.3/2.5	125	1.8	40	100	-30/+85
125-UY		YEL	50/80 ⁽³⁾	44	570	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-UG		GRN	12/20 ⁽³⁾	44	555	1.7/2.2/2.5	125	1.8	40	100	-30/+85

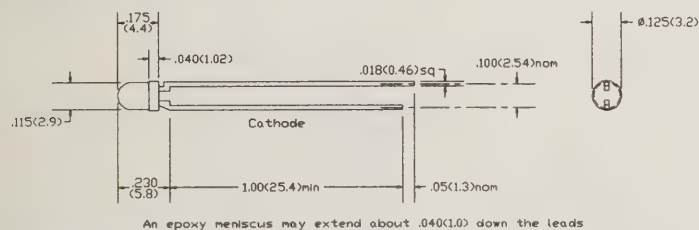
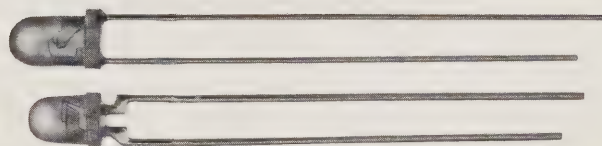
1. Derate from $T_A=50^\circ\text{C}$
2. Forward Current=50mA
3. Forward Current=40mA

Reverse Breakdown Voltage V_R (IR=100 μA)=5Vdc, E & U=4Vdc
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

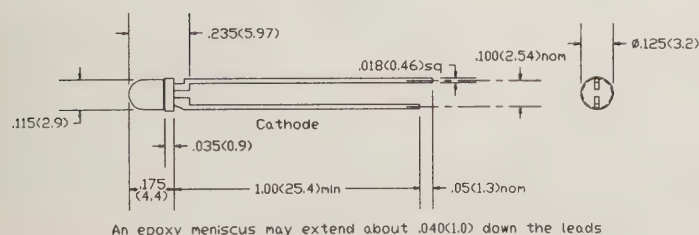
TO ORDER:

Select part number in **BOLD** from first column in above table.

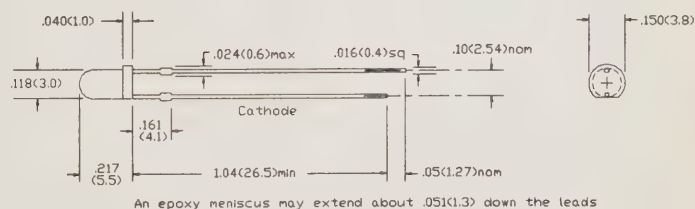
Example: 125-BR (T-1, Diffused, RED, B Series)



M Series



B Series



E and U Series

All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025, .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.



Data Display Products

T-1 LEDs LOW POWER, DIFFUSED

Red, Amber or Green

Diffused Tinted Encapsulations

2mA Operation

Part Number	Color	Luminous Intensity I_V (mcd) at 25°C, 2 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 2 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
125-RLP	RED	1.0/1.8	50	635	1.5/1.8/2.2	24	.36	7	7	-55/+100
125-ALP	AMB	1.0/1.6	50	583	1.5/1.9/2.7	36	.54	7	7	-55/+100
125-GLP	GRN	1.0/1.6	50	565	1.5/1.8/2.2	24	.36	7	7	-55/+100

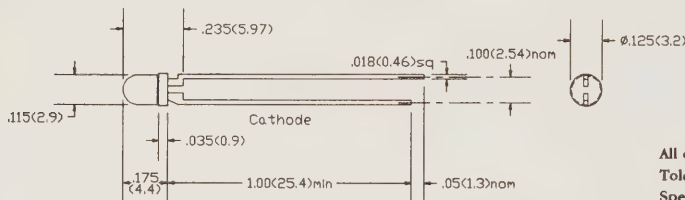
Reverse Breakdown Voltage V_R (IR=100 μ A)=5Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 125-ALP (T-1, Low Power, AMBER)



An epoxy meniscus may extend about .040(1.0) down the leads

All dimensions are in inches(mm)
Tolerances: .xx(.x)+/-0.25, .xxx(.xx)+/-0.10(.25)
Specifications are subject to change without notice.

Low Power Series

SPACERS

Part Number		
Black Epoxy	Nylon	Spacer Length (inches)
SPR250	SPRN250	.250
SPR375	SPRN375	.375
SPR500	SPRN500	.500
SPR750	SPRN750	.750
SPR875	SPRN875	.875
SPR1000	SPRN1000	1.000

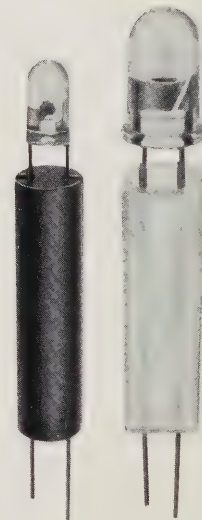
Intermediate lengths and lengths greater than 1 inch are available, please contact factory.

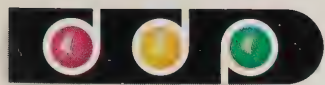
For spacers greater than 1 inch, LED lead extensions are required.

TO ORDER:

Select part number in **BOLD** from above table.

Example: SPR375 (Black Epoxy, .375" Spacer)
SPRN1000 (Nylon, 1.000" Spacer)





Data Display Products

T-1 LEDs BI-COLOR, DIFFUSED

Red/Green

Milky Diffused Encapsulation

Wide Viewing Angle

Part Number	Color	Luminous Intensity I_V (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
125K-RG	RED/GRN	2.0/5.0 2.0/5.0	100	625 565	1.7/2.0/2.5 1.8/2.2/2.5	105	1.6	30	150	-50/+100

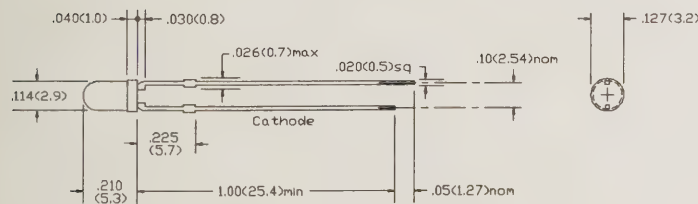
Reverse Breakdown Voltage $V_R(I_R=100\mu\text{A})=5\text{Vdc}$

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 125K-RG (T-1, RED/GREEN, Bi-Color)

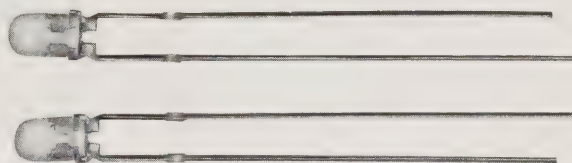


An epoxy meniscus may extend about .040(1.0) down the leads

All dimensions are in inches(mm)

Tolerances: .xx*(.x)+/-0.025, .xxx*(.xx)+/-0.010*(.25)

Specifications are subject to change without notice.



Bi-Color Series

Wires

Standard Wire Leads: 24 AWG TPB stranded, UL 1061 insulation, 6 inch length, red on anode, black on cathode.

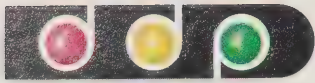
Wire leads are spliced to the LED, insulation covering the splices can be supplied.

For Other Gauges, Lengths, or Colors, Contact Factory

TO ORDER:

Select Discrete LED part number with the desired Model, Series, Encapsulation and Color from the Discrete LED catalog. Place a **W** at the end of the complete part number.

Example: 125-BCRW (T-1, Non-Diffused RED, B Series with 6 inch Wires)



Data Display Products

T-1 LEDs

INTEGRATED RESISTORS, DIFFUSED

Red, Amber or Green

Diffused Tinted Encapsulations

5Vdc or 12Vdc Operation

Part Number	Color	Fwd Voltage (V)	Luminous Intensity I_v (mcd) $T_A=25^\circ\text{C}$ at Fwd Voltage Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Current I_f (mA) Min/Typ/Max at Fwd Voltage	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$		
							Derating Factor ($V/^\circ\text{C}$) $T_A=50^\circ$	DC Fwd Voltage (V)	Operating & Storage Temp ($^\circ\text{C}$)
125-BR5V	RED	5	1.5/4.0	60	635	7/10/15	.071	7.5	-40/+85
125-BA5V	AMB	5	1.5/4.0	60	583	7/10/15	.071	7.5	-40/+85
125-BG5V	GRN	5	1.5/4.0	60	565	8/12/15	.071	7.5	-40/+85
125-BR12V	RED	12	1.5/4.0	60	635	9/13/20	.086	15	-40/+85
125-BA12V	AMB	12	1.5/4.0	60	583	9/13/20	.086	15	-40/+85
125-BG12V	GRN	12	1.5/4.0	60	565	9/13/20	.086	15	-40/+85

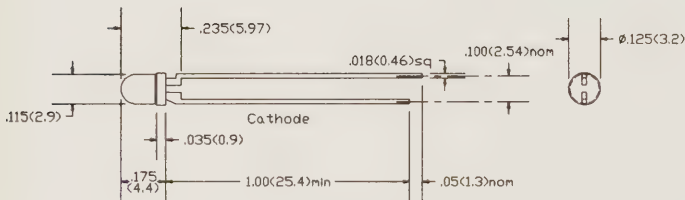
Reverse Breakdown Voltage $V_R(I_R=100\mu\text{A})=5\text{Vdc}$

LED Soldering Temperature= 260°C (1/16" below package base for 5 seconds)

TO ORDER:

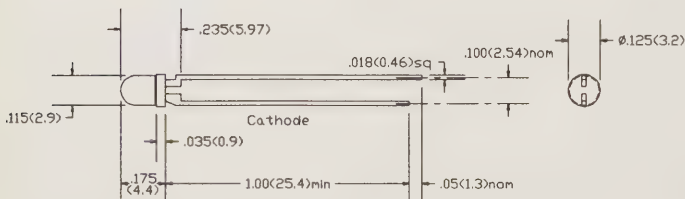
Select part number in **BOLD** from first column in above table.

Example: **125-BG5V** (T-1, GREEN, Integrated Resistor for 5Vdc)
125-BR12V (T-1, RED, Integrated Resistor for 12Vdc)



An epoxy meniscus may extend about .040(1.0) down the leads

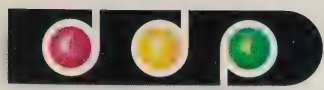
Integrated Resistor Series, 5Vdc



An epoxy meniscus may extend about .040(1.0) down the leads

Integrated Resistor Series, 12Vdc

All dimensions are in inches(mm)
Tolerances: .xx(.x) $\pm .025$, .xxx(.xx) $\pm .010$ (.25)
Specifications are subject to change without notice.



Data Display Products

T-1 LEDs

NON-DIFFUSED

Red, Amber, Amber/Yellow, Yellow or Green

Non-Diffused Tinted Encapsulations

Luminous Intensities from 8 to 160 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wavelength λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
125-BCR	B	RED	17/24	45	635	1.5/2.2/3.0	135	1.8	30	90	-55/+100
125-BCA		AMB	12/24	45	583	1.5/2.2/3.0	85	1.6 ^[1]	20	60	-55/+100
125-BCG		GRN	8/10	45	565	1.5/2.3/3.0	135	1.8	30	90	-55/+100
125-ECR	E	RED	30/60	30	660	1.5/1.7/2.0	100	1.8	50	300	-30/+85
125-ECA		AMB	16/24	30	605	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-ECY		YEL	24/48	30	570	1.7/2.1/2.5	125	1.8	40	100	-30/+85
125-ECG		GRN	10/15	30	555	1.7/2.1/2.5	125	1.8	40	100	-30/+85
125-UCR	U	RED	100/160 ^[2]	30	660	1.5/1.8/2.0	100	1.8	50	300	-30/+85
125-UCA		AMB	40/ 60 ^[3]	30	605	1.7/2.3/2.5	125	1.8	40	100	-30/+85
125-UCY		YEL	90/150 ^[3]	30	570	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-UCG		GRN	40/ 60 ^[3]	30	555	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-PCR	P	RED	40/80	30	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
125-PCA		AMB	20/40	30	605	1.5/2.2/2.5	125	1.6	40	100	-30/+85
125-PCAY		AMB/YEL	20/40	30	580	1.5/2.2/2.5	125	1.6	40	100	-30/+85
125-PCY		YEL	30/60	30	570	1.5/2.1/2.5	125	1.6	40	100	-30/+85
125-PCG		GRN	10/20	30	555	1.5/2.1/2.5	125	1.6	40	100	-30/+85

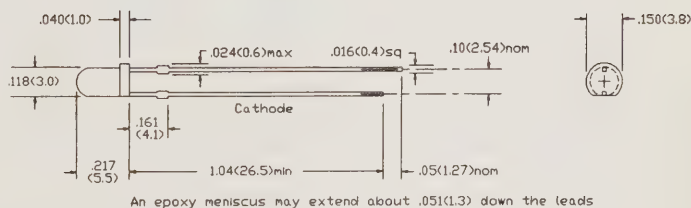
1. Derate from $T_A=50^\circ\text{C}$
2. Forward Current=50mA
3. Forward Current=40mA

Reverse Breakdown Voltage V_R (IR=100 μA)=5Vdc, E & U=4Vdc
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

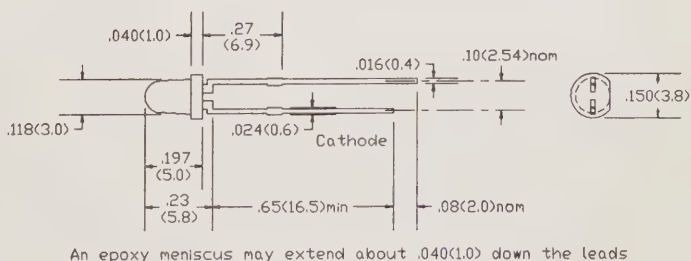
TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: **125-PCAY** (T-1, Non-Diffused, AMBER/YELLOW, P Series)
125-ECY (T-1, Non-Diffused, YELLOW, E Series)

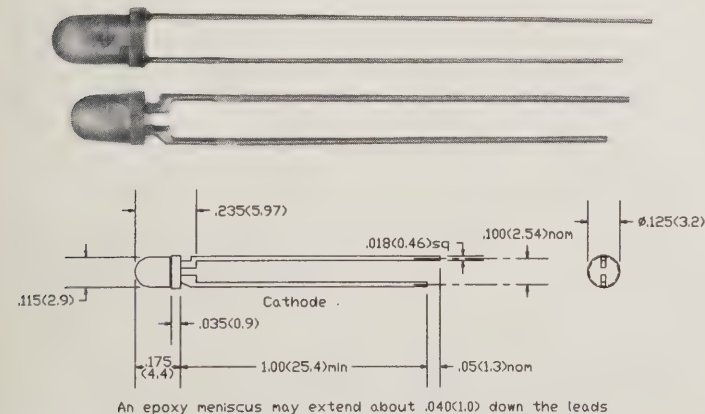


E and U Series



P Series

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025, .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



B Series



Data Display Products

T-1 LEDs

WATER CLEAR

Red, Amber, Yellow or Green

Water Clear Encapsulations

Luminous Intensities from 10 to 160 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
125-EWR	E	RED	30/60	30	660	1.5/1.7/2.0	100	1.8	50	300	-30/+85
125-EWA		AMB	16/24	30	605	1.7/2.1/2.5	125	1.8	40	100	-30/+85
125-EWY		YEL	24/48	30	570	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-EWG		GRN	10/15	30	555	1.7/2.1/2.5	125	1.8	40	100	-30/+85
125-UWR	U	RED	100/160 ^[1]	30	660	1.5/1.8/2.0	100	1.8	50	300	-30/+85
125-UWA		AMB	40/ 60 ^[2]	30	605	1.7/2.3/2.5	125	1.8	40	100	-30/+85
125-UWY		YEL	90/150 ^[2]	30	570	1.7/2.2/2.5	125	1.8	40	100	-30/+85
125-UWG		GRN	40/ 60 ^[2]	30	555	1.7/2.2/2.5	125	1.8	40	100	-30/+85

1. Forward Current=50mA
2. Forward Current=40mA

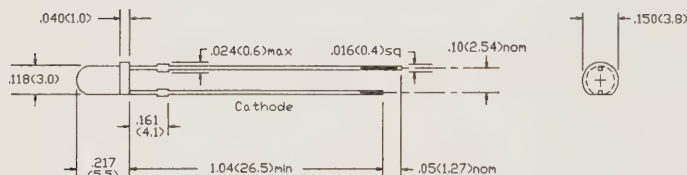
Reverse Breakdown Voltage V_R (IR=100 μ A)=4Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 125-EWG (T-1, Water Clear, GREEN, E Series)



An epoxy meniscus may extend about .051(1.3) down the leads

E and U Series

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs

LOW PROFILE, DIFFUSED

Red, Amber, Yellow or Green

Diffused Tinted Encapsulations

Luminous Intensities from 8 to 45 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I_V (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
180-BR	B	RED	10/14	50	635	1.5/2.2/3.0	120	1.8	30	60	-55/+100
180-BA		AMB	12/20	50	583	1.5/2.2/3.0	120	1.6 ^[1]	30	60	-55/+100
180-BG		GRN	14/20	50	565	1.5/2.3/3.0	120	1.8	30	60	-55/+100
180-ER	E	RED	20/30	44	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
180-EA		AMB	20/30	44	605	1.7/2.2/2.5	125	1.6	50	100	-30/+85
180-EY		YEL	30/45	44	570	1.7/2.1/2.5	125	1.6	50	100	-30/+85
180-EG		GRN	8/12	44	555	1.7/2.1/2.5	125	1.6	50	100	-30/+85

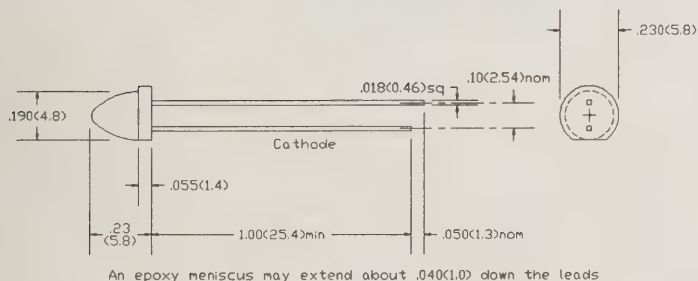
1. Derate from $T_A=50^\circ\text{C}$

Reverse Breakdown Voltage V_R (IR=100 μA) B Series=5Vdc, E Series=4Vdc
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

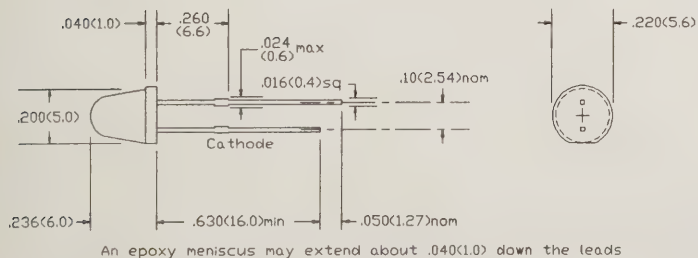
TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 180-BR (T-1³/₄ Low Profile, Diffused, RED, B Series)



Low Profile B Series



Low Profile E Series



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025, .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.



Data Display Products

T-1³/₄ LEDs LOW PROFILE, NON-DIFFUSED

Red, Amber or Green

Diffused Tinted Encapsulations

Luminous Intensities from 16 to 75 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I _v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle 2θ _{1/2}	Peak Wave-length λ (nm)	Fwd Voltage V _F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at T _A =25°C				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
180-BCR	B	RED	24/36	45	635	1.5/2.2/3.0	120	1.8	30	60	-55/+100
180-BCA		AMB	24/36	45	583	1.5/2.2/3.0	120	1.6 ⁽¹⁾	30	60	-55/+100
180-BCG		GRN	22/30	40	565	1.5/2.3/3.0	120	1.8	30	60	-55/+100
180-ECR	E	RED	30/60	30	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
180-ECA		AMB	30/45	30	605	1.7/2.2/2.5	125	1.6	50	100	-30/+85
180-ECY		YEL	50/75	30	570	1.7/2.1/2.5	125	1.6	50	100	-30/+85
180-ECG		GRN	16/24	30	555	1.7/2.1/2.5	125	1.6	50	100	-30/+85

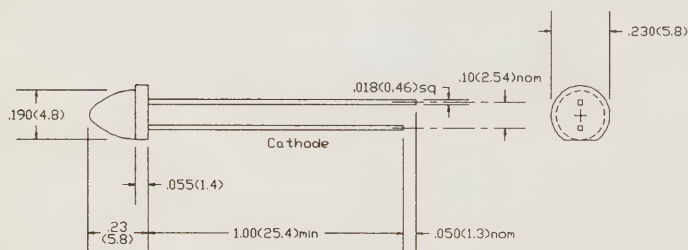
1. Derate from T_A=50°C

Reverse Breakdown Voltage V_R(I_R=100μA) B Series=5Vdc, E Series=4Vdc
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

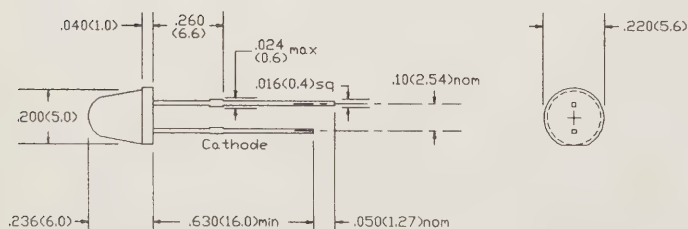
Select part number in **BOLD** from first column in above table.

Example: 180-ECA (T-1³/₄ Low Profile, Non-Diffused, AMBER, E Series)



An epoxy meniscus may extend about .040(1.0) down the leads

Low Profile B Series



An epoxy meniscus may extend about .040(1.0) down the leads

Low Profile E Series



All dimensions are in inches(mm)

Tolerances: .xx°(x)±.025, .xxx°(xx)±.010°(.25)

Specifications are subject to change without notice.



T-1³/₄ LEDs

Data Display Products

MEDIUM PROFILE, DIFFUSED

Red, Amber or Green

Diffused Tinted Encapsulations

Luminous Intensities from .6 to 11.2 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_f (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
190-SR	S	RED	.6/2	60	655	1.5/1.7/2.0	80	1.6	40	60	-55/+100
190-LR	L	RED	3.4/11.2	60	635	1.7/2.0/2.8	100	1.6	30	120	-55/+100
190-LA		AMB	3.4/11.2	60	585	1.7/2.1/2.8	60	1.6	20	80	-55/+100
190-LG		GRN	3.4/11.2	60	565	1.7/2.1/2.8	100	1.6	30	120	-55/+100

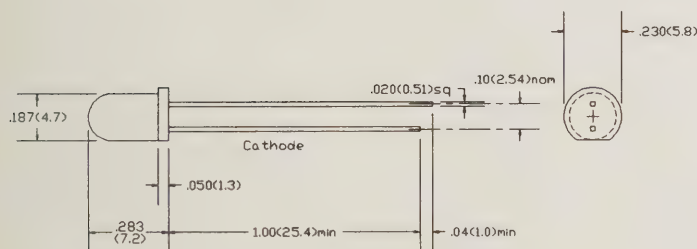
Reverse Breakdown Voltage V_R (IR=100 μ A)=5Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 190-LR (T-1³/₄ Medium Profile, Diffused, RED, L Series)



An epoxy meniscus may extend about .059(1.5) down the leads

Medium Profile S and L Series

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ LEDs

MEDIUM PROFILE, NON-DIFFUSED

Red, Amber or Green

Non-Diffused Tinted Encapsulations

Luminous Intensities from 20 to 60 mcd

Part Number	Series	Color	Luminous Intensity I _v (mcd) 25°C at 20 mA Min/Typ	Viewing Angle 2θ ¹ / ₂	Peak Wave-length λ (nm)	Fwd Voltage V _F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at T _A =25°C				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
190-LCR	L	RED	20/53	34	635	1.7/2.0/2.8	100	1.6	30	120	-55/+100
190-LCA		AMB	20/57	34	585	1.7/2.1/2.8	60	1.6	20	80	-55/+100
190-LCG		GRN	20/60	34	565	1.7/2.1/2.8	100	1.6	30	120	-55/+100

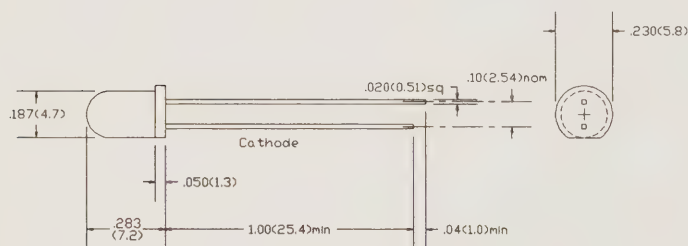
Reverse Breakdown Voltage V_R(I_R=100μA)=5Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 190-LCG (T-1³/₄ Medium Profile, Non-Diffused, GREEN, L Series)



An epoxy meniscus may extend about .059(1.5) down the leads

Medium Profile L Series

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025, .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

T-1 $\frac{3}{4}$ LEDs

DIFFUSED

Red, Amber, Yellow or Green

Diffused Tinted Encapsulations

Luminous Intensities from 3 to 120 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{\frac{1}{2}}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-MR	M	RED	3/9	65	635	1.7/2.0/3.0	120	1.6	35	90	-55/+100
200-MA		AMB	2.5/8	65	585	1.7/2.1/3.0	120	1.6	35	90	-55/+100
200-MG		GRN	7/14	75	562	1.7 2.2/3.0	120	1.6	30	90	-55/+100
200-BR	B	RED	8/14	60	635	1.5/2.2/3.0	135	1.8	30	90	-55/+100
200-BA		AMB	8/16	60	583	1.5/2.2/3.0	85	1.6 ^[1]	20	60	-55/+100
200-BG		GRN	8/10	60	565	1.5/2.3/3.0	135	1.8	30	90	-55/+100
200-ER	E	RED	20/30	44	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
200-EA		AMB	16/24	44	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-EY		YEL	30/45	44	570	1.7/2.1/2.5	125	1.6	40	100	-30/+85
200-EG		GRN	8/12	44	555	1.7/2.1/2.5	125	1.6	40	100	-30/+85
200-UR	U	RED	70/120 ^[2]	44	660	1.5/1.8/2.0	100	1.6	50	300	-30/+85
200-UA		AMB	50/80 ^[3]	44	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-UY		YEL	60/100 ^[3]	44	570	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-UG		GRN	24/40 ^[3]	44	555	1.7/2.2/2.5	125	1.6	40	100	-30/+85



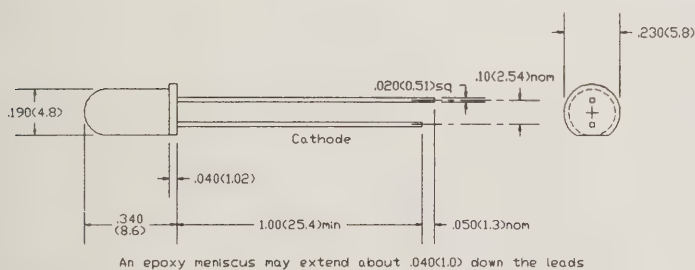
1. Derate from $T_A = 50^\circ\text{C}$
2. Forward Current = 50mA
3. Forward Current = 40mA

Reverse Breakdown Voltage V_R ($I_R = 100\mu\text{A}$) = 5Vdc, E & U = 4Vdc
LED Soldering Temperature = 260°C (1/16" below package base for 5 seconds)

TO ORDER:

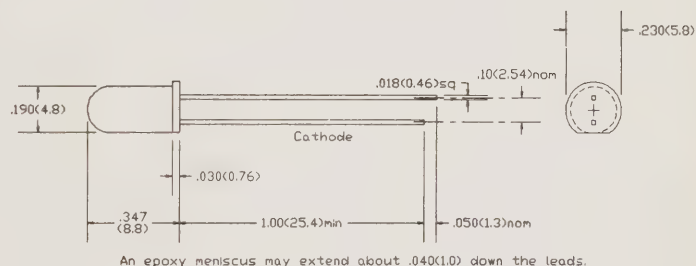
Select part number in **BOLD** from first column in above table.

Example: 200-MR (T-1 $\frac{3}{4}$, Diffused, RED, M Series)

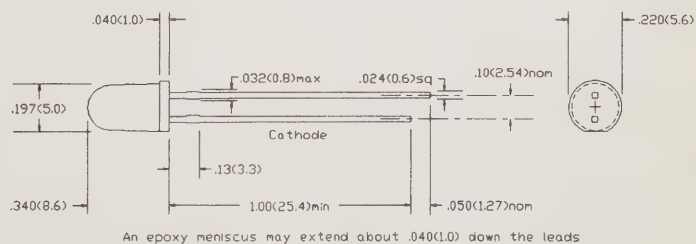


M Series

All dimensions are in inches(mm)
Tolerances: .xx(x) +/- .025, .xxx(x) +/- .010(.25)
Specifications are subject to change without notice.



B Series



E and U Series



Data Display Products

T-1³/₄ LEDs LOW POWER, DIFFUSED

Red, Amber or Green

Diffused Tinted Encapsulations

2mA Operation

Part Number	Color	Luminous Intensity I_v (mcd) at 25°C, 2 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 2 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-RLP	RED	1.2/2.0	50	635	1.5/1.8/2.2	24	.36	7	7	-55/+100
200-ALP	AMB	1.2/1.8	50	583	1.5/1.9/2.7	36	.54	7	7	-55/+100
200-GLP	GRN	1.2/1.8	50	565	1.5/1.8/2.2	24	.36	7	7	-55/+100

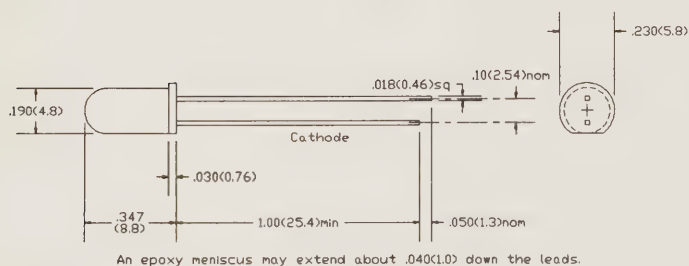
Reverse Breakdown Voltage V_R (IR=100 μ A)=5Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-ALP (T-1³/₄, Low Power, AMBER)



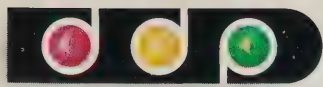
Low Power Series

All dimensions are in inches(mm)

Tolerances: .xx"(x)+/-0.025, .xxx"(xx)+/-0.010"(.25)

Specifications are subject to change without notice.





Data Display Products

T-1 $\frac{3}{4}$ LEDs BI-COLOR, DIFFUSED

Red/Green

Milky Diffused Encapsulation

Wide Viewing Angle

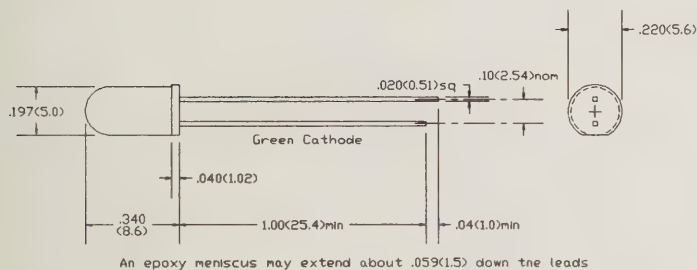
Part Number	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-LRG	RED/GRN	10/21 10/17	80	660 565	1.5/1.8/2.4 1.7/2.2/3.0	100	1.6	40 30	90	-55/+100

Reverse Breakdown Voltage V_R ($I_R=100\mu\text{A}$) Red=4Vdc, Green=5Vdc
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-LRG (T-1 $\frac{3}{4}$, RED/GREEN, Bi-Color)

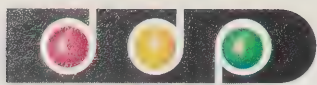


Bi-Color Series

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ LEDs

TRI-COLOR, DIFFUSED

Red/Amber/Green

Milky Diffused Encapsulation

Wide Viewing Angle

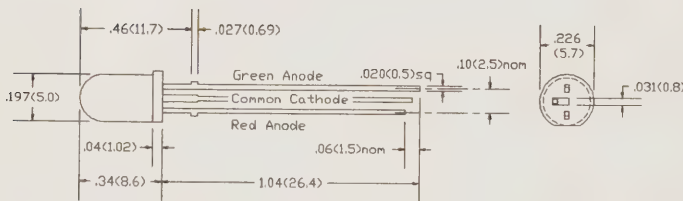
Part Number	Color	Luminous Intensity I_V (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-RAG (Common Cathode)	RED/ AMB/ GRN	2/5 2/5 2/5	60	630 565	1.5/2.0/3.0 1.7/2.4/3.0	150	2.2	30	90	-55/+100
200-GAR (Common Anode)	RED/ AMB/ GRN	1/5 1/5 1/5	54	635 565	1.7/2.0/2.8 1.7/2.1/2.8	100	1.5	30	160	-55/+100

Reverse Breakdown Voltage V_R (IR=100 μ A)=6Vdc for 200-RAG, V_R (IR=100 μ A)=5Vdc for 200-GAR
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

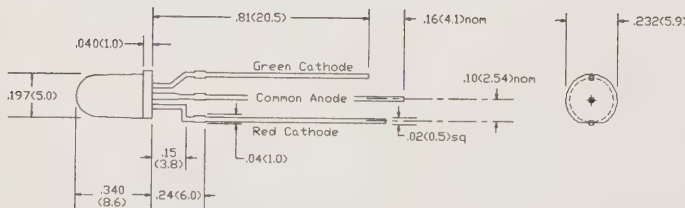
Select part number in **BOLD** from first column in above table.

Example: 200-RAG (T-1³/₄, RED/AMBER/GREEN Tri-Color, Common Cathode)



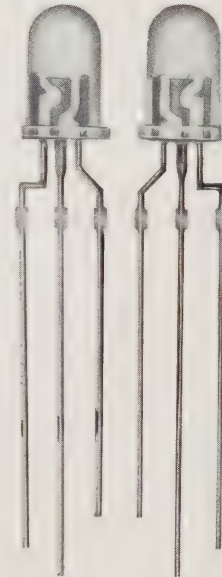
An epoxy meniscus may extend about .03(0.76) down the leads

Tri-Color Series, Common Cathode



An epoxy meniscus may extend about .040(1.0) down the leads

Tri-Color Series, Common Anode



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025, .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.



T-1³/₄ LEDs

Data Display Products

INTEGRATED RESISTORS, DIFFUSED

Red, Amber or Green

Diffused Tinted Encapsulations

5Vdc or 12Vdc Operation

Part Number	Color	Fwd Voltage (V)	Luminous Intensity I _v (mcd) T _A =25°C at Fwd Voltage Min/Typ	Viewing Angle 2θ ¹ / ₂	Peak Wave-length λ (nm)	Fwd Current I _f (mA) Min/Typ/Max at Fwd Voltage	Absolute Maximum Ratings at T _A =25°C		
							Derating Factor (V/°C) T _A =50°C	DC Fwd Voltage (V)	Operating & Storage Temp (°C)
200-BR5V	RED	5	1.5/4.0	60	635	7/10/15	.071	7.5	-40/+85
200-BA5V	AMB	5	1.5/4.0	60	583	7/10/15	.071	7.5	-40/+85
200-BG5V	GRN	5	1.5/4.0	60	565	8/12/15	.071	7.5	-40/+85
200-BR12V	RED	12	1.5/4.0	60	635	9/13/20	.086	15	-40/+85
200-BA12V	AMB	12	1.5/4.0	60	583	9/13/20	.086	15	-40/+85
200-BG12V	GRN	12	1.5/4.0	60	565	9/13/20	.086	15	-40/+85

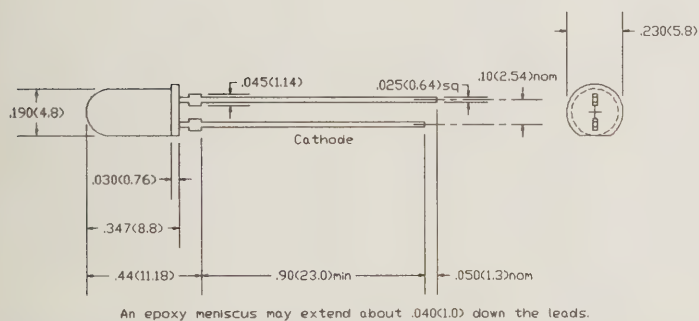
Reverse Breakdown Voltage V_R(I_R=100μA)=5Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

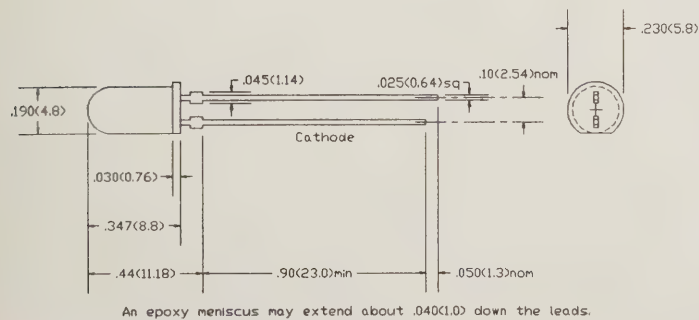
TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-BA5V (T-1³/₄, Integrated Resistor for 5 Vdc, AMBER)



Integrated Resistor Series, 5Vdc



Integrated Resistor Series, 12Vdc

All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025, .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs BLINKING, DIFFUSED

Red

Diffused Tinted Encapsulation

5Vdc or 15Vdc Operation

							Absolute Maximum Ratings at T _A =25° C			
Part Number	Color	Luminous Intensity I _v (mcd) at 25° C, 20 mA Min/Typ	Viewing Angle 2θ½	Peak Wave- length λ (nm)	Fwd Voltage V _F (V) Min/Typ/Max at 20 mA	Typ Pulse Rate (Hz)	Power Dissi- pation (mW)	Derating Factor (mW/° C)	On-State Fwd Current (mA)	Operating & Storage Temp (° C)
200D-ERB	RED	10/22	50	660	3.5/5/15	2.4	400	6.4	70	-20/+70

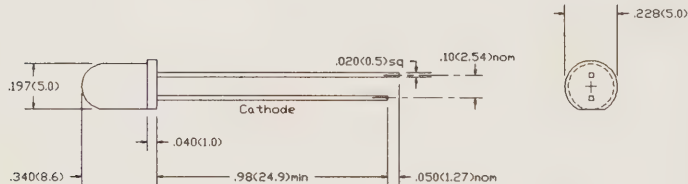
Reverse Breakdown Voltage $V_R(I_R=100\mu\text{A})=4\text{Vdc}$

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200D-ERB (T-1³/₄, Blinking RED)



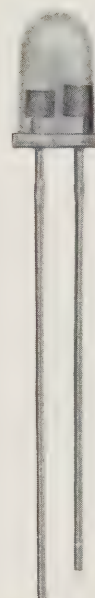
An epoxy meniscus may extend about .040(1.0) down the leads

Blinking Series

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs NON-DIFFUSED

Red, Amber, Yellow or Green

Non-Diffused Tinted Encapsulations

Luminous Intensities from 10 to 400 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I _v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle 2θ ¹ / ₂	Peak Wave-length λ (nm)	Fwd Voltage V _F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at T _A =25°C				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-MCR	M	RED	17/40	28	635	1.7/2.0/3.0	120	1.6	35	90	-55/+100
200-MCA		AMB	10/45	28	585	1.7/2.1/3.0	120	1.6	35	90	-55/+100
200-MCG		GRN	30/60	35	562	1.7 2.2/3.0	120	1.6	30	90	-55/+100
200-BCR	B	RED	30/60	35	635	1.5/2.2/3.0	135	1.8	30	90	-55/+100
200-BCA		AMB	40/60	35	583	1.5/2.2/3.0	85	1.6 ^[1]	20	60	-55/+100
200-BCG		GRN	22/50	24	565	1.5/2.3/3.0	135	1.8	30	90	-55/+100
200-ECR	E	RED	80/160	30	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
200-ECA		AMB	60/ 90	30	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-ECY		YEL	80/160	30	570	1.7/2.1/2.5	125	1.6	40	100	-30/+85
200-ECG		GRN	50/ 80	30	555	1.7 2.1/2.5	125	1.6	40	100	-30/+85
200-UCR	U	RED	240/400 ^[2]	30	660	1.5/1.8/2.0	100	1.6	50	300	-30/+85
200-UCA		AMB	120/200 ^[3]	30	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-UCY		YEL	200/350 ^[3]	30	570	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-UCG		GRN	120/200 ^[3]	30	555	1.7/2.2/2.5	125	1.6	40	100	-30/+85

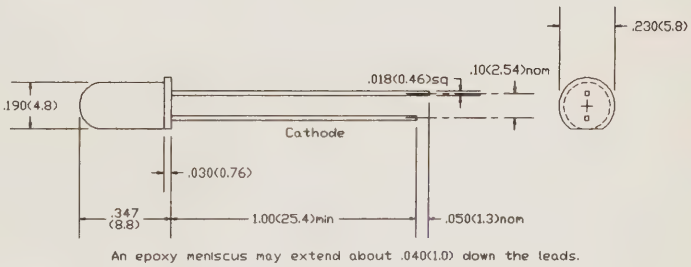


- Derate from T_A=50°C
- Forward Current=50mA
- Forward Current=40mA

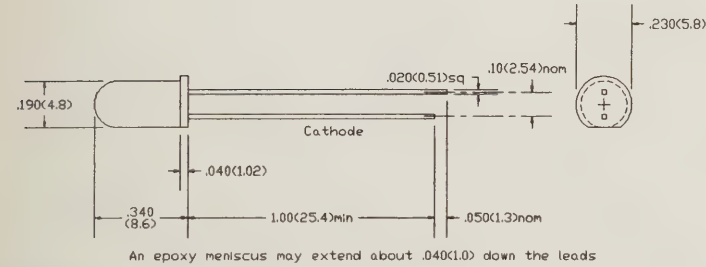
Reverse Breakdown Voltage V_R(I_R=100μA)=5Vdc, E & U=4Vdc
LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:
Select part number in **BOLD** from first column in above table.

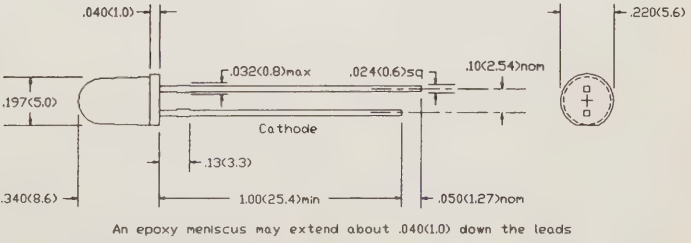
Example: 200-UCY (T-1³/₄, Non-Diffused, YELLOW, U Series)



B Series

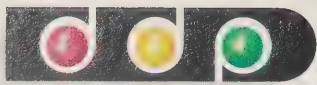


M Series



E and U Series

All dimensions are in inches(mm)
Tolerances: .xx*(.x)+/-0.25, .xxx*(.xx)+/-0.010*(.25)
Specifications are subject to change without notice.



T-1³/₄ LEDs

Data Display Products

WIDE ANGLE ILLUMINATOR, NON-DIFFUSED

Red, Amber, Yellow or Green

Non-Diffused Tinted Encapsulation

Wide Viewing Angle

Part Number	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-FUCR	RED	17/25	90	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
200-FUCA	AMB	10/15	90	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-FUCY	YEL	17/25	90	570	1.7/2.1/2.5	125	1.6	40	100	-30/+85
200-FUCG	GRN	10/15	90	555	1.7/2.1/2.5	125	1.6	40	100	-30/+85

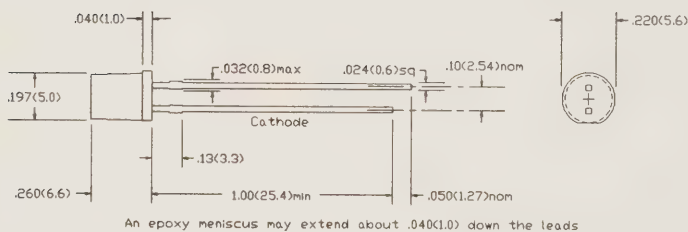
Reverse Breakdown Voltage V_R (IR=100 μ A)=4Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-FUCG (T-1³/₄, Wide Angle Illuminator, Non-Diffused, GREEN)



Wide Angle Illuminator Series

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025, .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs

DUAL CHIP, NON-DIFFUSED

Red, Orange, Amber or Green

Non-Diffused Tinted Encapsulation

Wide Viewing Angle

Part Number	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/ $^\circ\text{C}$)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp ($^\circ\text{C}$)
200-R-2	RED	3/20	80	635	3.6/4.2/5.4	160	2.4	30	90	-20/+75
200-O-2	ORNGE	3/20	80	610	3.6/4.2/5.4	160	2.4	30	90	-20/+75
200-A-2	AMB	3/20	80	585	3.6/4.2/5.4	160	2.4	30	90	-20/+75
200-G-2	GRN	4/25	80	565	3.6/4.2/5.4	160	2.4	30	90	-20/+75

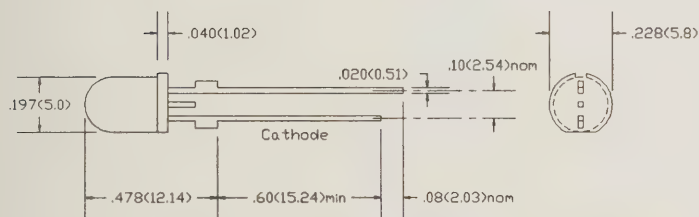
Reverse Breakdown Voltage V_R (IR=100 μA)=8Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-O-2 (T-1³/₄, Dual Chip, Non-Diffused, ORANGE)



An epoxy meniscus may extend about .059(1.5) down the leads

Dual Chip Series

All dimensions are in inches(mm)

Tolerances: .xx*(x)+/-0.025, .xxx*(.xx)+/-0.010*(.25)

Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs

WATER CLEAR

Red, Amber, Yellow or Green

Water Clear Encapsulations

Luminous Intensities from 50 to 500 mcd

Part Number	Series Listed by Increasing Luminous Intensity	Color	Luminous Intensity I _v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle 2θ ¹ / ₂	Peak Wave-length λ (nm)	Fwd Voltage V _F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at T _A =25°C				
							Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-EWR	E	RED	80/160	30	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
200-EWA		AMB	60/ 90	30	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-EWY		YEL	80/160	30	570	1.7/2.1/2.5	125	1.6	40	100	-30/+85
200-EWG		GRN	50/ 80	30	555	1.7 2.1/2.5	125	1.6	40	100	-30/+85
200-UWR	U	RED	300/500 ^[1]	30	660	1.5/1.8/2.0	100	1.6	50	300	-30/+85
200-UWA		AMB	120/200 ^[2]	30	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-UWY		YEL	200/350 ^[2]	30	570	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-UWG		GRN	120/200 ^[2]	30	555	1.7/2.2/2.5	125	1.6	40	100	-30/+85

1. Forward Current=50mA
2. Forward Current=40mA

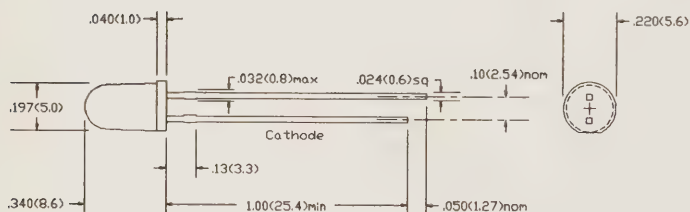
Reverse Breakdown Voltage V_R(I_R=100μA)=4Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-EWA (T-1³/₄, Water Clear, AMBER, E Series)



An epoxy meniscus may extend about .040(1.0) down the leads

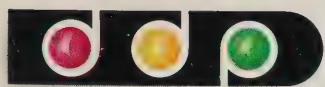
E and U Series

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs

WIDE ANGLE ILLUMINATOR, WATER CLEAR

Red, Amber, Yellow or Green

Water Clear Encapsulation

Wide Viewing Angle

Part Number	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A=25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/°C)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
200-FUWR	RED	17/25	90	660	1.5/1.7/2.0	100	1.6	50	300	-30/+85
200-FUWA	AMB	10/15	90	605	1.7/2.2/2.5	125	1.6	40	100	-30/+85
200-FUWY	YEL	17/25	90	570	1.7/2.1/2.5	125	1.6	40	100	-30/+85
200-FUWG	GRN	10/15	90	555	1.7/2.1/2.5	125	1.6	40	100	-30/+85

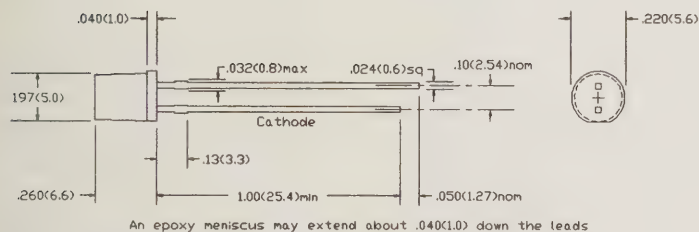
Reverse Breakdown Voltage V_R (IR=100 μ A)=4Vdc

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

Select part number in **BOLD** from first column in above table.

Example: 200-FUWY (T-1³/₄, Wide Angle Illuminator, Water Clear, YELLOW)



Wide Angle Illuminator Series

All dimensions are in inches(mm)

Tolerances: .xx*(.x)+/-0.25, .xxx*(.xx)+/-0.10*(.25)

Specifications are subject to change without notice.





Data Display Products

T-1³/₄ LEDs HI-INTENSITY, WATER CLEAR

Red

Water Clear Encapsulation

Luminous Intensities up to 3 Candela

Part Number	Color	Luminous Intensity I_v (mcd) at 25°C, 20 mA Min/Typ	Viewing Angle $2\theta_{1/2}$	Peak Wave-length λ (nm)	Fwd Voltage V_F (V) Min/Typ/Max at 20 mA	Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$				
						Power Dissipation (mW)	Derating Factor (mW/ $^\circ\text{C}$)	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp ($^\circ\text{C}$)
200K-R2K	RED	1000/2000	35	660	1.5/1.8/2.5	100	1.5	30	150	-50/+100
200K-R3K	RED	2000/3000	35	660	1.5/1.8/2.5	100	1.5	30	150	-50/+100

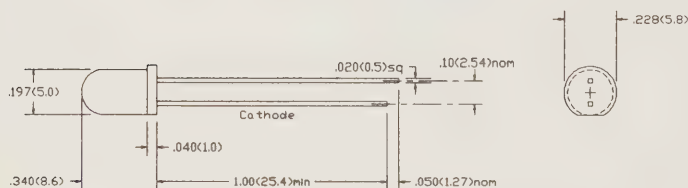
Reverse Breakdown Voltage $V_R(I_R=100\mu\text{A})=5\text{Vdc}$

LED Soldering Temperature=260°C (1/16" below package base for 5 seconds)

TO ORDER:

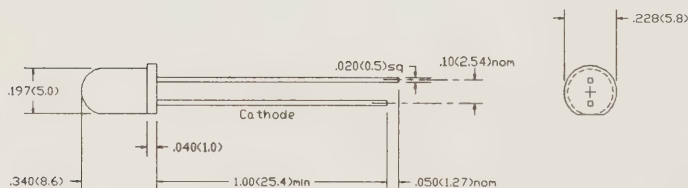
Select part number in **BOLD** from first column in above table.

Example: 200K-R2K (T-1³/₄, Water Clear RED, 2000 mcd)



An epoxy meniscus may extend about .040(1.0) down the leads

2 Candela Hi-Intensity Series



An epoxy meniscus may extend about .040(1.0) down the leads

3 Candela Hi-Intensity Series

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.



Data Display Products



Data Display Products

PCB Mount LEDs

Data Display Products offers single indicators with vertical, horizontal or 45° viewing angles, stackable mounts with various LED projections and variable arrays that slide or snap together. Packages are available with LEDs of varying intensities and most with 5Vdc or 12Vdc integrated resistors.

How to Build a Part Number

If you know the DDP part number you require, please turn to the alpha-numeric product listing on pages 1 and 2 ■ Section. Locate your part number by the Model and check the page(s) listed.

If you do not know the part number, please turn to the Table of Contents on page 3 ■ Section. From the headings locate the type of PCB package you require and from the sub-headings choose the size. Turn to the page(s) listed.

Under each heading there are several options. Select one option from each. Unless otherwise noted, you may mix and match options from the different headings to suit your application requirements. Below is a description of each heading.

Model

This describes the base style of each device. A mechanical drawing for each base is included near each table.

Series

Please refer to the Discrete LEDs ■ Section of the catalog where all DDP LEDs are listed along with their specifications.

Encapsulation

The LEDs are available with Diffused, Non-Diffused and Water Clear encapsulations.

Color

The table lists the LED colors available for the listed series. Some series may not be available in some colors.





Data Display Products

ALPHA-NUMERIC LISTING

The following is an alpha-numeric listing of DDP's Printed Circuit Board Mount LEDs, ■ Section.

Model	Description	Color Code	Pages
PCA190	PCB Mount LEDs	■	8-9
PCA200	PCB Mount LEDs	■	10-11
PCH125	PCB Mount LEDs	■	6-7
PCH125-200	PCB Mount LEDs	■	6-7
PCH190	PCB Mount LEDs	■	8-9
PCH200	PCB Mount LEDs	■	10-11
PCH125(2-8)-200	PCB Mount LEDs	■	16-17
PCL145	PCB Mount LEDs	■	8-9
PCL190/PCL190C	PCB Mount LEDs	■	8
PCL191-200	PCB Mount LEDs	■	8-9
PCL200/PCL200C	PCB Mount LEDs	■	10
PCL245	PCB Mount LEDs	■	10-11
PCL201-200	PCB Mount LEDs	■	10-11
PCL1254	PCB Mount LEDs	■	15
PCL1904	PCB Mount LEDs	■	18
PCL2004	PCB Mount LEDs	■	20
PCLR190	PCB Mount LEDs	■	8-9
PCLR200	PCB Mount LEDs	■	10-11
PCLR190(2-16)	PCB Mount LEDs	■	19
PCLR200(2-16)	PCB Mount LEDs	■	21
PCLT195	PCB Mount LEDs	■	14
PCLT195(2-16)	PCB Mount LEDs	■	22
PCO80	PCB Mount LEDs	■	4-5
PCO84	PCB Mount LEDs	■	4-5



Data Display Products

SUBMINIATURE PCB MOUNT LEDs

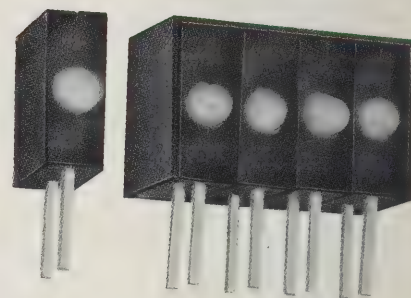
LOGIC STATUS INDICATORS

Diffused Red, Amber or Green

Single Indicator or an Array of Four

Electrical Assembly Selection From 1 to 28Vdc

Model	Color Peak Wavelength (nm)	Electrical Assembly Specify Electrical Assembly for Required Voltage and Current		
			Voltage/Current Range	Luminous Intensity (mcd) per Electrical Assembly (All Colors) Min/Typ
PC080 (Single) PC084 (Four Array)	R (RED, 635)	1 ^{(1) (2)}	1.4/1.6/2.0V at 20mA ⁽³⁾	2.5/6.0
	A (AMBER, 583)	2 ⁽¹⁾	1.5/2.2/3.0V at 20mA ⁽³⁾	2.0/6.0
	G (GREEN, 565)	5	3.6V/8mA-8V/32mA	2.0/6.0
		15	5V/3.5mA-6V/5mA	0.8/2.0
		5L	5V/9.5mA-6V/13mA	1.3/5.0
		12	5V/5mA-15V/22mA	2.0/6.0
		24	5V/1.3mA-28V/11mA	2.0/6.0



1. External resistor required, Reverse Breakdown Voltage V_R (IR=100 μ A)=5Vdc

2. Available in RED only.

3. Values listed are Min/Typ/Max Forward Voltages for the LEDs used with this package.

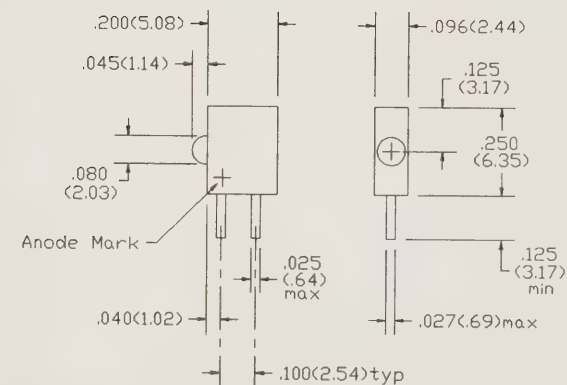
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

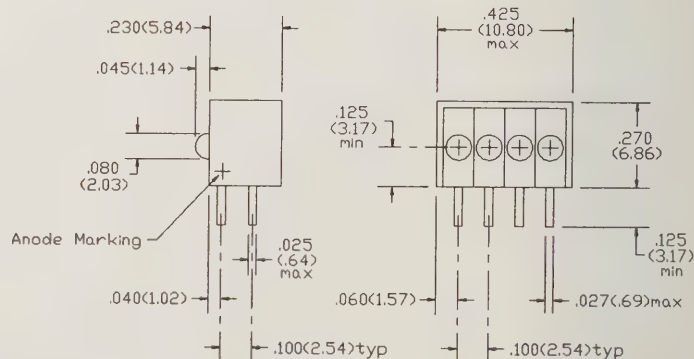
Example: **PC080-G5L** (Single Indicator, GREEN, 5 Vdc at 9.5 mA Operation)

PC084-RL5/GL5/AL5/AL5 (Four Array, RED, GREEN, AMBER, and AMBER, 5 Vdc at 3.5 mA)

PC084-R2 (Four Array, All RED, 2.2 Vdc Forward Voltage, External Resistor Required)



PC080

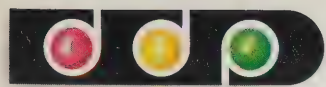


PC084

All dimensions are in inches (mm)

Tolerances: .xx" (x) +/- .025, .xxx" (xx) +/- .010" (.25)

Specifications are subject to change without notice.



SUBMINIATURE PCB MOUNT LEDs

Data Display Products

LOW POWER LOGIC STATUS INDICATORS

Diffused Red, Amber or Green

Single Indicator or an Array of Four

2mA Operation

Model	Color Peak Wavelength (nm)	Electrical Assembly Specify Electrical Assembly for Required Voltage and Current			
		Color	Forward Voltage at 2mA (Vdc) Min/Typ/Max	Current (mA)	Luminous Intensity (mcd) Min/Typ
PC080 (Single)	-RLP (RED, 635)	2 ⁽¹⁾ RED AMBER GREEN	1.5/1.8/2.2	2	0.4/0.8
	-ALP (AMBER, 583)		1.5/1.9/2.7	2	0.4/0.6
PC084 (Four Array)	-GLP (GREEN, 565)		1.5/1.8/2.2	2	0.4/0.6

1. External resistor required.

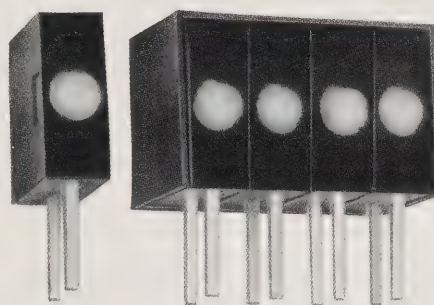
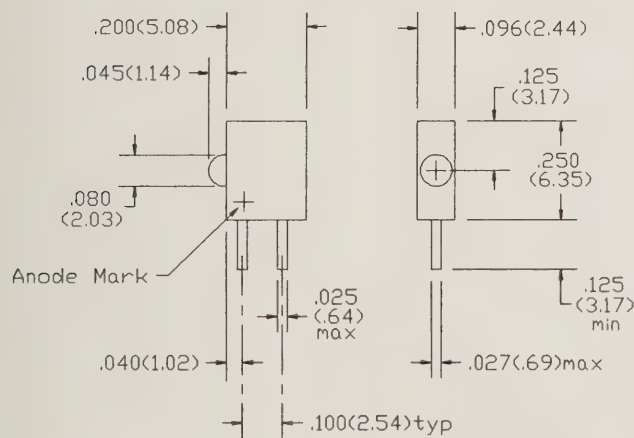
NOTE: Reverse Breakdown Voltage $V_R(I_R=100\mu A)=5Vdc$

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

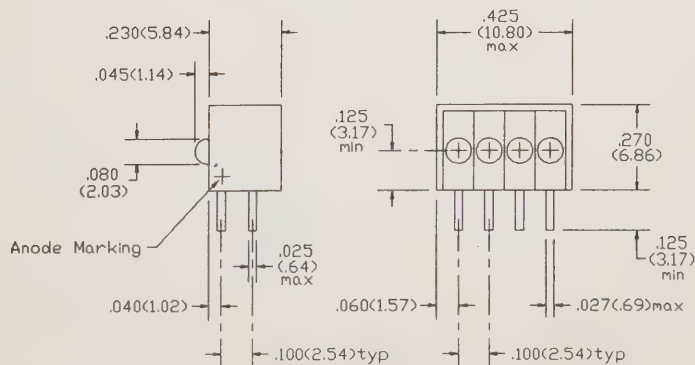
Example: PC080-GLP2 (Single Indicator, Low Power GREEN, 2mA Operation, External Resistor Required)

PC084-RLP2/GLP2/RLP2/RLP2 (Four Array, Low Power, RED, GREEN, and Two RED, 2mA Operation, External Resistor Required)



PC080

All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.



PC084



Data Display Products

SINGLE PCB MOUNT LEDs

T-1 PACKAGE

Red, Amber, Amber/Yellow, Yellow or Green

Right Angle or Vertical Mount LEDs

Bi-Color, Low Power or Integrated Resistor LEDs

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color
PCH125 (Right Angle Mount)	-M (Diffused Only)	C (Non-Diffused)	R (RED, All Series)
PCH125-200 (Right Angle Mount)	-B	For Diffused, Omit Letter	A (AMBER, All Series)
PCV125 (Vertical Mount)	-E	W (Water Clear, E & U Series Only)	AY (AMBER/YELLOW, P Series Only)
PCV125-200 (Vertical Mount)	-P (Non-Diffused Only)		Y (YELLOW, E, U, & P Series Only)
	-U		G (GREEN, All Series)
	Series Below Do Not Require Encapsulation or Color Code:		
	-XLP ^[1] (Low Power, Diffused Only)		
	-RG (Bi-Color, Red/Grn, Milky Diffused Only)		
	-BX5V ^[1] (Integrated Resistor, 5Vdc, Diffused Only)		
	-BX12V ^[1] (Integrated Resistor, 12Vdc, Diffused Only)		

1. Replace X with required color R (RED), A (AMBER) or G (GREEN).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PCH125-UY (Right Angle Mount, U Series, Diffused YELLOW)
 PCV125-200-RG (Vertical Mount, Bi-Color, Milky Diffused)
 PCH125-BCG (Right Angle Mount, B Series, Non-Diffused GREEN)
 PCH125-BA12V (Right Angle Mount, Integrated Resistor for 12Vdc, Diffused AMBER)

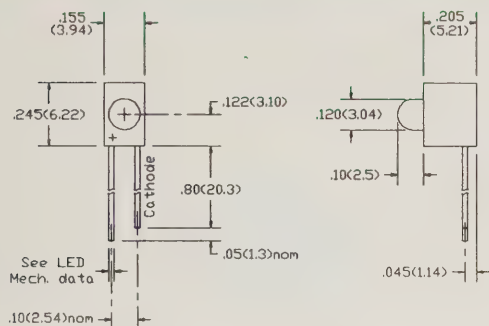




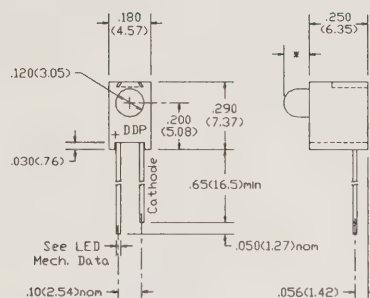
Data Display Products

SINGLE PCB MOUNT LEDs

T-1 PACKAGE



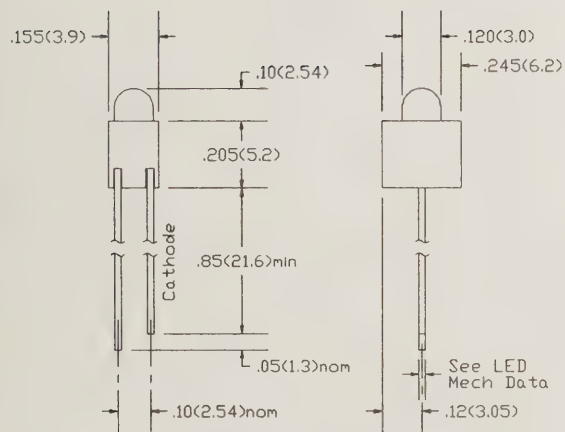
PCH125



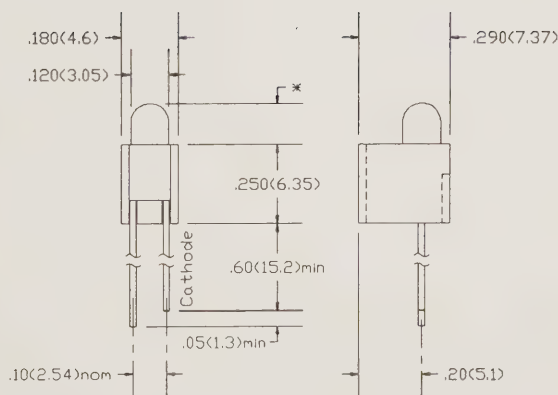
* 125 BX, BCX, MX, MCX, MRG	.11
125 EX, ECX, UX, UCX	.15
125 PCX	.13

For Bi-color, Marked Polarity Applies To Red.

PCH125-200

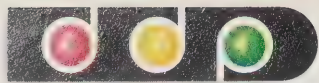


PCV125



PCV125-200

All dimensions are in inches(mm)
 Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)
 Specifications are subject to change without notice.



Data Display Products

SINGLE PCB MOUNT LEDs

T-1 $\frac{3}{4}$ MEDIUM PROFILE PACKAGE

Red, Amber or Green

Right Angle, 45 Degree Angle or Vertical Mount LEDs

Diffused or Non-Diffused LED Encapsulations

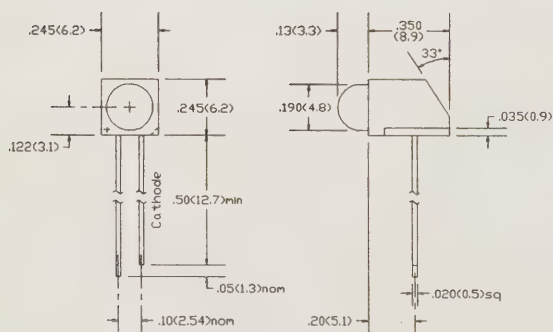
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color
PCL190 (Right Angle Mount)	-S (Diffused Red Only)	C (Non-Diffused)	R (RED, S & L Series)
PCL190C (Right Angle Mount)	-L	For Diffused, Omit Letter	A (AMBER, L Series)
PCH190 (Right Angle Mount)			G (GREEN, L Series)
PCV190 (Vertical Mount)			
PCLR190 (Right Angle Mount)			
PCL191-200 (Right Angle Mount)			
PCA190 (Right Angle Mount)			
PCL145 (45° Angle Mount)			



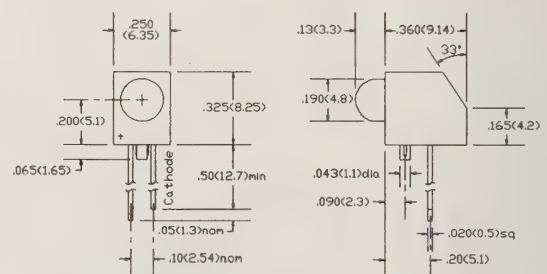
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PCL190-SR (Right Angle Mount, S Series, Diffused RED)
PCV190-LCA (Vertical Mount, L Series, Non-Diffused AMBER)
PCL145-LG (45 Degree Angle Mount, L Series, Diffused GREEN)



PCL190



PCL190C

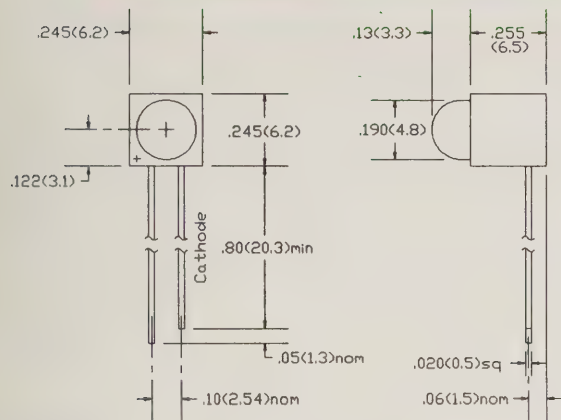
All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025, .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.



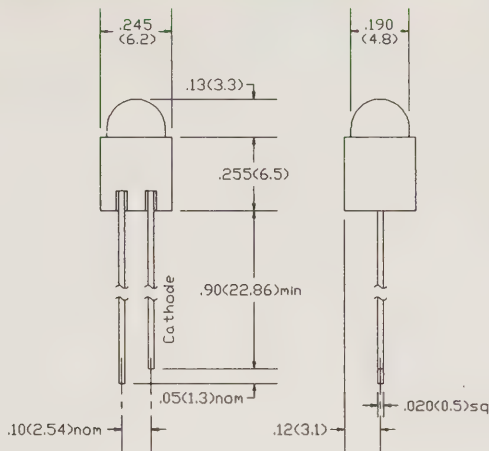
SINGLE PCB MOUNT LEDs

Data Display Products

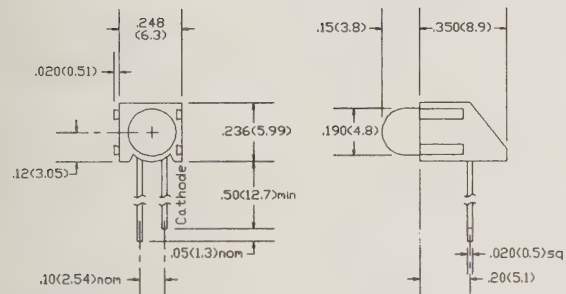
T-1 1/4 MEDIUM PROFILE PACKAGE



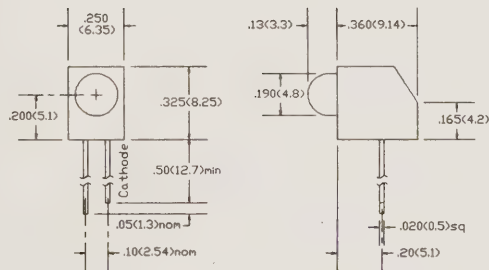
PCH190



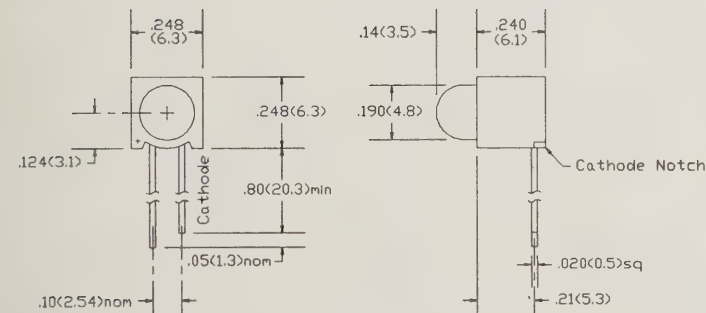
PCV190



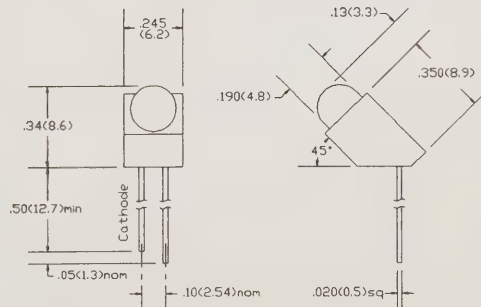
PCLR190



PCL191-200



PCA 190



PCL145

All dimensions are in inches(mm)
Tolerances: .xx(x) +/- .025, .xxx(x) +/- .010(.25)
Specifications are subject to change without notice.



Data Display Products

SINGLE PCB MOUNT LEDs

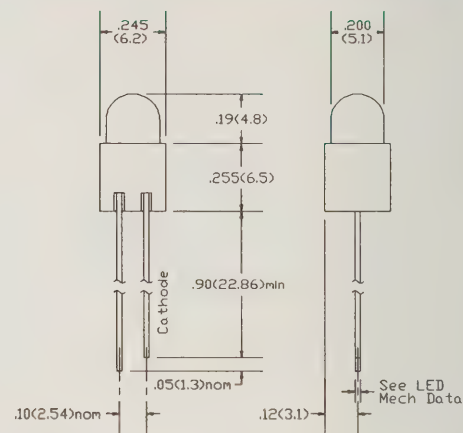
T-1 3/4 PACKAGE

Red, Orange, Amber, Yellow or Green

Right Angle, 45 Degree Angle, or Vertical Mount LEDs

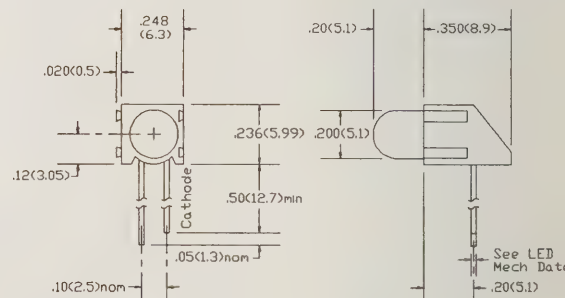
Integrated Resistor LEDs Available

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color
PCL200 (Right Angle Mount)	-M	C (Non-Diffused)	R (RED, All Series)
	-B	For Diffused, Omit Letter	A (AMBER, All Series)
PCL200C (Right Angle Mount)	-E	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)
	-U		G (GREEN, All Series)
PCH200 (Right Angle Mount)	Series Below Do Not Require Encapsulation or Color Code:		
PCV200 (Vertical Mount)	-XLP ^[1] (Low Power, Diffused Only)		
PCLR200 (Right Angle Mount)	-X-2 ^[1] (Dual Chip, Non- Diffused Only)		
	-LRG (Bi-Color, Red/Grn, Milky Diffused Only)		
PCL201-200 (Right Angle Mount)	-RAG ^[2] (Tri-Color, Red/ Grn/Amb, Milky Diffused Only)		
PCA200 (Right Angle Mount)	-BX5V ^[1] (Integrated Resistor for 5Vdc, Diffused Only)		
PCL245 ^[3] (45° Angle Mount)	-BX12V ^[1] (Integrated Resistor for 12Vdc, Diffused Only)		
	-ERB (Blinking Red, Diffused Only)		
	-R2K (Hi Intensity, Water Clear Red Only)		
	-R3K (Hi Intensity, Water Clear Red Only)		



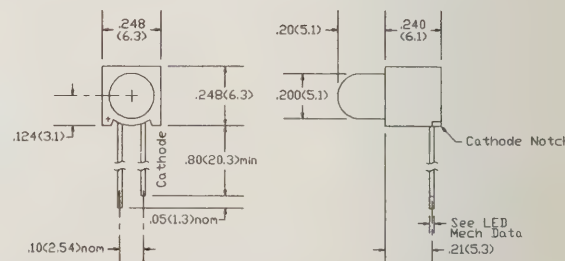
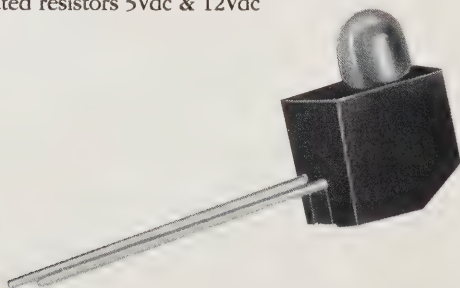
PCV200

All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.



PCLR200

1. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
2. Available with model PCH200 only
3. Not available with integrated resistors 5Vdc & 12Vdc



PCA200



SINGLE PCB MOUNT LEDs

Data Display Products

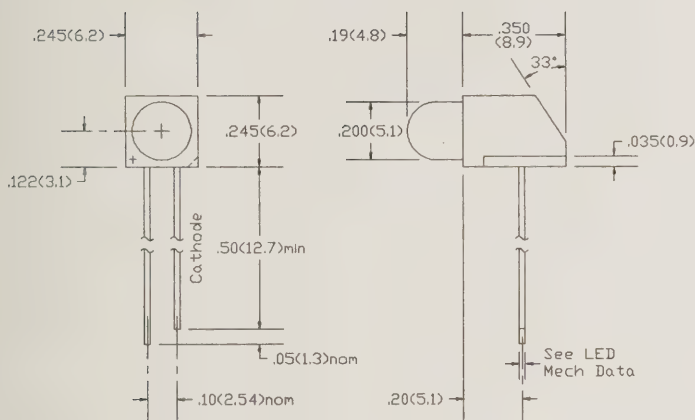
T-1 3/4 PACKAGE



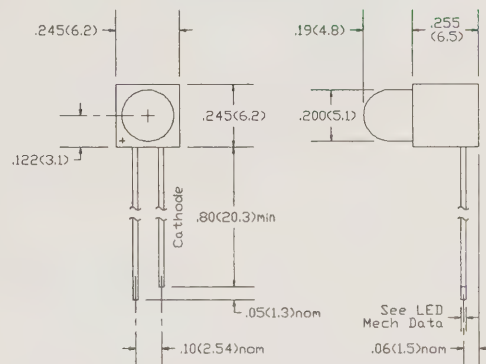
TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

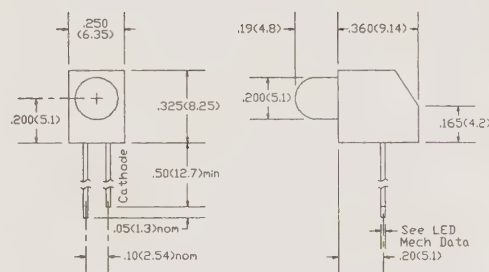
Example: PCH200-R-2 (Right Angle Mount, Dual Chip, RED)
PCV200-EWG (Vertical Mount, E Series, Water Clear GREEN)
PCA200-BA (Right Angle Mount, B Series, Diffused AMBER)



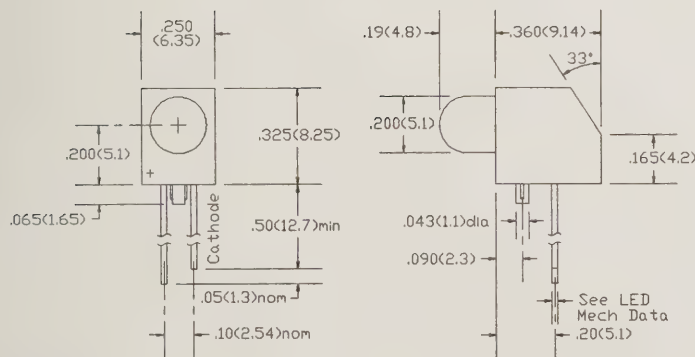
PCL200



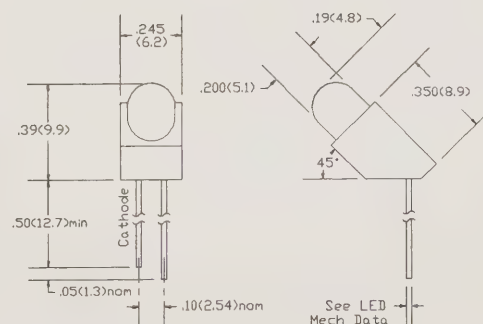
PCH200



PCL201-200



PCL200C



PCL245

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025, .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



DUAL STACKED PCB MOUNT LEDs

Data Display Products

T-1 $\frac{3}{4}$ PACKAGE

Red, Amber, Yellow or Green

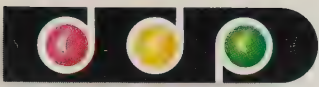
Diffused, Non-Diffused or Water Clear LED Encapsulations

Integrated Resistor LEDs Available

Model	Top LED (L1)			Bottom LED (L2)		
	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color
PCT200 (Right Angle Mount)	-M	C (Non-Diffused)	R (RED, All Series)	/M	C (Non-Diffused)	R (RED, All Series)
	-B	For Diffused, Omit Letter	A (AMBER, All Series)	/B	For Diffused, Omit Letter	A (AMBER, All Series)
	-E			/E		
	-U	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	/U	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)
	Series Below Do Not Require Encapsulation or Color Code:		G (GREEN, All Series)	Series Below Do Not Require Encapsulation or Color Code:		G (GREEN, All Series)
	-XLP ^[1] (Low Power, Diffused Only)			/XLP ^[1] (Low Power, Diffused Only)		
	-LRG (Bi-Color, Milky Diffused Only)			/LRG (Bi-Color, Milky Diffused Only)		
	-BX5V ^[1] (Integrated Resistor for 5Vdc, Diffused Only)			/BX5V ^[1] (Integrated Resistor for 5 Vdc, Diffused Only)		
	-BX12V ^[1] (Integrated Resistor for 12Vdc, Diffused Only)			/BX12V ^[1] (Integrated Resistor for 12 Vdc, Diffused Only)		
	-ERB (Blinking Red, Diffused Only)			-ERB (Blinking Red, Diffused Only)		
	-R2K (Hi-Intensity, Water Clear Red Only)			-R2K (Hi-Intensity, Water Clear Red Only)		
	-R3K (Hi-Intensity, Water Clear Red Only)			-R3K (Hi-Intensity, Water Clear Red Only)		

1. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).

NOTE: Do not mix series within the model.



DUAL STACKED PCB MOUNT LEDs

Data Display Products

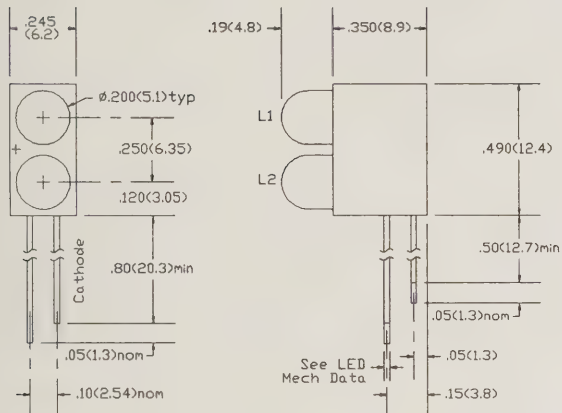
T-1 $\frac{3}{4}$ PACKAGE



TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted. The first Series, Encapsulation and Color Code is the top LED (L1), the second is the bottom LED (L2).

Example: PCT200-BR12V/BR12V (Dual Stacked Right Angle Mount, RED 12Vdc Integrated Resistor LED in the Top and Bottom)
PCT200-MA/MG (Dual Stacked Right Angle Mount, M Series, Diffused AMBER on the Top and Diffused GREEN on the Bottom)

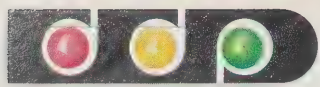


PCT200

All dimensions are in inches(mm)

Tolerances: .xx"(x) $\pm .025$, .xxx"(xx) $\pm .010$ (.25)

Specifications are subject to change without notice.



Data Display Products

DUAL STACKED PCB MOUNT LEDs

T-1 $\frac{3}{4}$ MEDIUM PROFILE PACKAGE

Red, Amber or Green

Choice of LED Projections

Diffused or Non-Diffused LED Encapsulations

Model	Top LED (L1)			Bottom LED (L2)		
	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Series Listed by Increasing Luminous Intensity	Encapsulation	Color
PCLT195 (Right Angle Mount)	-S (Diffused Red Only)	C (Non-Diffused)	R (RED, S & L Series)	/S (Diffused Red Only)	C (Non-Diffused)	R (RED, S & L Series)
PCT190 (Right Angle Mount)	-L	For Diffused, Omit Letter	A (AMBER, L Series) G (GREEN, L Series)	/L	For Diffused, Omit Letter	A (AMBER, L Series) G (GREEN, L Series)

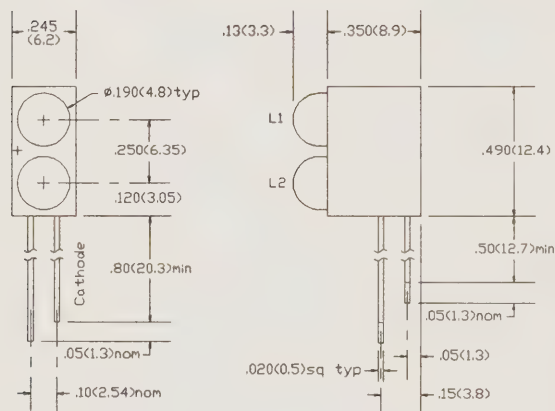
NOTE: Do not mix series within the model.

TO ORDER:

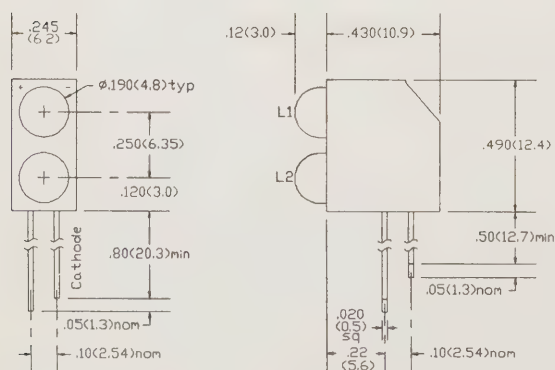
To build a part number, select one **BOLD** component from each column in above table except where noted. The first Series, Encapsulation and Color Code is the top LED (L1), the second is the bottom LED (L2).

Example: PCLT195-SR/SR (Dual Stacked Right Angle Mount, S Series, Diffused RED on Top and Bottom)

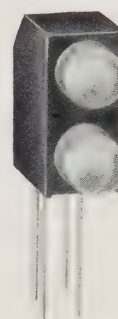
PCT190-LCG/LCA (Dual Stacked Right Angle Mount, L Series, Non-Diffused GREEN on Top and Non-Diffused AMBER on Bottom)



PCT190



PCLT195



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025, .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.



ARRAY PCB MOUNT LEDs

Data Display Products

T-1 FOUR LED ARRAY

Red, Amber, Amber/Yellow, Yellow or Green

Right Angle or Vertical Mount LEDs

Bi-Color, Low Power or Integrated Resistor LEDs

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color
PCL1254 (Right Angle Mount)	-M (Diffused Only)	C (Non-Diffused)	R (RED, All Series)
	-B	For Diffused, Omit Letter	A (AMBER, All Series)
	-E	W (Water Clear, E & U Series Only)	AY (AMBER/YELLOW, P Series Only)
	-P (Non-Diffused Only)		Y (YELLOW, E, U & P Series Only)
	-U		G (GREEN, All Series)
	Series Below Do Not Require Encapsulation or Color Code:		
	-XLP ^[1] (Low Power, Diffused Only)		
	-RG (Bi-Color, Red/Grn, Milky Diffused Only)		
	-BX5V ^[1] (Integrated Resistor, 5Vdc, Diffused Only)		
	-BX12V ^[1] (Integrated Resistor, 12Vdc, Diffused Only)		

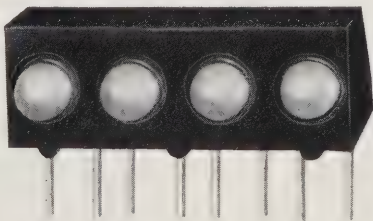
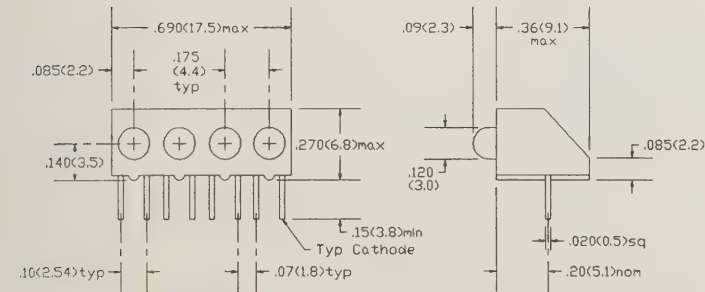
1. Replace X with required color R (RED), A (AMBER) or G (GREEN).

NOTE: Do not mix series within the model.

TO ORDER:

To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. For arrays with multiple colors, select the Model, Series and Encapsulation then separate each additional Series, Encapsulation, Color Code sequence by a /.

Example: PCL1254-MA (Right Angle Mount Four LED Array, M Series, All LEDs Diffused AMBER)
PCL1254-BCA/BCA/BCG/BCR (Right Angle Mount Four LED Array, B Series, with Two AMBER, One GREEN and One RED Non-Diffused LEDs.)



All dimensions are in inches(mm)
Tolerances: .xx(.x)+/-0.25, .xxx(.xx)+/-0.10(.25)
Specifications are subject to change without notice.

PCL1254



Data Display Products

ARRAY PCB MOUNT LEDs

T-1 VARIABLE ARRAY

Red, Amber, Amber/Yellow, Yellow or Green

Two to Eight LEDs per Array

Bi-Color, Low Power or Integrated Resistor LEDs

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color
PCH125N-200 ^[1] (Right Angle Mount)	-M (Diffused Only)	C (Non-Diffused)	R (RED, All Series)
PCV125N-200 ^[1] (Vertical Mount)	-B	For Diffused, Omit Letter	A (AMBER, All Series)
	-E	W (Water Clear, E & U Series Only)	A/Y (AMBER/YELLOW, P Series Only)
	-P (Non-Diffused Only)		Y (YELLOW, E, U & P Series Only)
	-U		G (GREEN, All Series)
	Series Below Do Not Require Encapsulation or Color Code:		
	-XLP ^[2] (Low Power, Diffused Only)		
	-RG (Bi-Color, Red/Grn, Milky Diffused Only)		
	-BX5V ^[2] (Integrated Resistor, 5Vdc, Diffused Only)		
	-BX12V ^[2] (Integrated Resistor, 12Vdc, Diffused Only)		

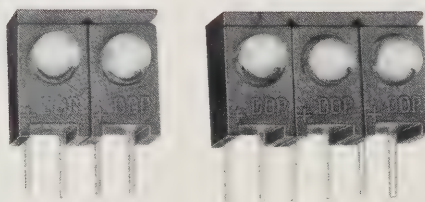
1. Replace N by the number of LEDs in the array, **2 - 8**.
2. Replace X with required color **R** (RED), **A** (AMBER) or **G** (GREEN).

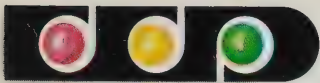
NOTE: Do not mix series within the model.

TO ORDER:

To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. For arrays with multiple colors, select the Model, Series and Encapsulation then separate each additional Series, Encapsulation, Color Code sequence by a /.

Example: **PCH1255-200-PCY** (Right Angle Mount Five LED Array, P Series, All LEDs Non-Diffused YELLOW)
PCH1253-MR/MG/MA (Right Angle Mount Three LED Array, M Series, with One RED, One GREEN and One AMBER Diffused LEDs.)

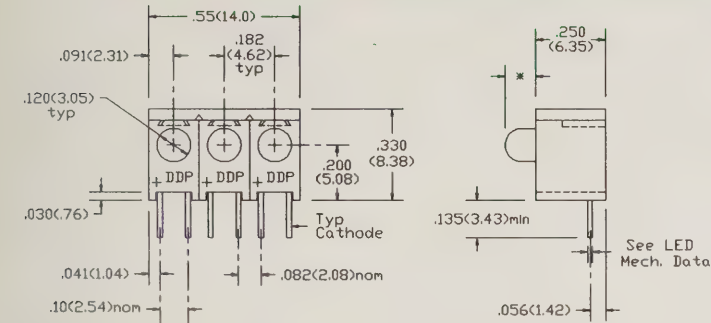




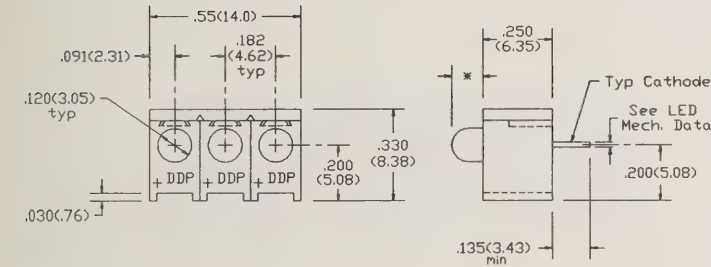
ARRAY PCB MOUNT LEDs

Data Display Products

T-1 VARIABLE ARRAY



PCH1253-200



PCH1253-200

* 125 BX, BCX, MX, MCX, MRG	.11
125 EX, ECX, UX, UCX	.15
125 PCX	.13

For Bi-color, Marked Polarity Applies To Red.

All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025, .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.



Data Display Products

ARRAY PCB MOUNT LEDs

T-1 $\frac{3}{4}$ MEDIUM PROFILE FOUR LED ARRAY

Red, Amber or Green

Color Combinations Available

Diffused or Non-Diffused LED Encapsulations

Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color
PCL1904 (Right Angle Mount)	-S (Diffused Red Only) -L	C (Non-Diffused)	R (RED, S & L Series)
		For Diffused, Omit Letter	A (AMBER, L Series)
			G (GREEN, L Series)

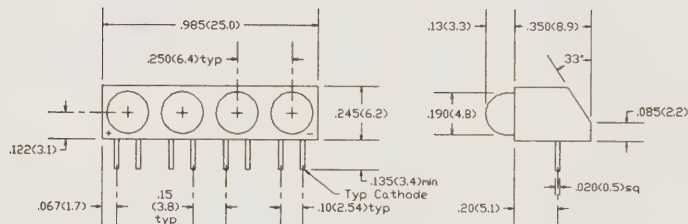
NOTE: Do not mix series within the model.

TO ORDER:

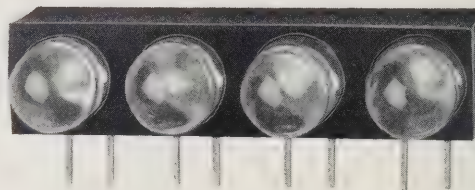
To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. For arrays with multiple colors, select the Model, Series and Encapsulation then separate each additional Series, Encapsulation, Color Code sequence by a /.

Example: PCL1904-SR (T-1 $\frac{3}{4}$ Medium Profile Four LED Array, S Series, Uniform Color, RED)

PCL1904-LA/LA/LG/LR (T-1 $\frac{3}{4}$ Medium Profile Four LED Array, L Series, Diffused AMBER, AMBER, GREEN and RED)



PCL1904



All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.



Data Display Products

ARRAY PCB MOUNT LEDs

T-1 $\frac{3}{4}$ MEDIUM PROFILE VARIABLE ARRAY

Red, Amber or Green

Two to Sixteen LEDs per Array

Color Combinations Available

Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color
PCLR190N ^[1] (Right Angle Mount)	-S (Diffused Red Only) -L	C (Non-Diffused) For Diffused, Omit Letter	R (RED, S & L Series) A (AMBER, L Series) G (GREEN, L Series)

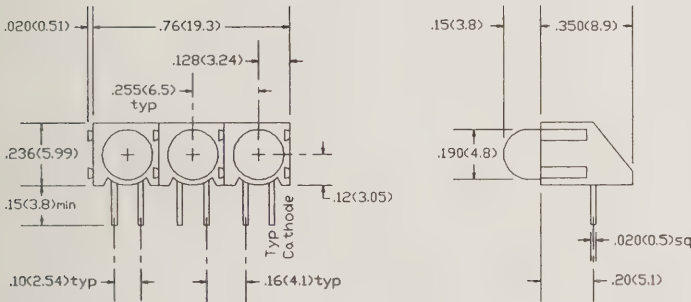
1. Replace N by the number of LEDs in the array, 2 - 16.

NOTE: Do not mix series within the model.

TO ORDER:

To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. For arrays with multiple colors, select the Model, Series and Encapsulation then separate each additional Series, Encapsulation, Color Code sequence by a /.

Example: PCLR1907-LCR (T-1 $\frac{3}{4}$, Medium Profile, Seven LED Array, All LEDs Non-Diffused RED)
PCLR1903-LG/LR/LR (T-1 $\frac{3}{4}$ Medium Profile, Three LED Array, Diffused GREEN, RED, and RED)



PCLR1903

All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.



Data Display Products

ARRAY PCB MOUNT LEDs

T-1 $\frac{3}{4}$ FOUR LED ARRAY

Red, Amber, Yellow or Green

Diffused, Non-Diffused or Water Clear LED Encapsulations

Low Power, Bi-Color, Blinking or Hi-Intensity LEDs

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color
PCL2004 (Right Angle Mount)	-M	C (Non-Diffused)	R (RED, All Series)
	-B	For Diffused, Omit Letter	A (AMBER, All Series)
	-E	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)
	-U		G (GREEN, All Series)
	Series Below Do Not Require Encapsulation or Color Code:		
	-XLP ^[1] (Low Power, Diffused Only)		
	-LRG (Bi-Color, Red/Grn, Milky Diffused Only)		
	-ERB (Blinking Red, Diffused Only)		
	-R2K (Hi-Intensity, Water Clear Red Only)		
	-R3K (Hi-Intensity, Water Clear Red Only)		

1. Replace X with required color R (RED), A (AMBER) or G (GREEN).

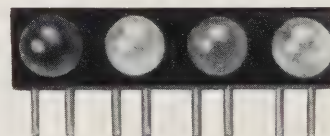
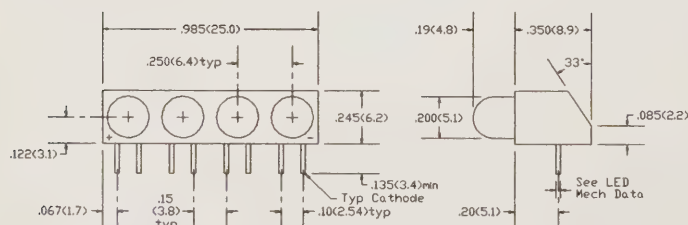
NOTE: Do not mix series within the model.

TO ORDER:

To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. For arrays with multiple colors, select the Model, Series and Encapsulation then separate each additional Series, Encapsulation, Color Code sequence by a /.

Example: PCL2004-BG (Right Angle Mount Four LED Array, B Series, All LEDs Diffused GREEN)

PCL2004-EWR/EWA/EWA/EWG (Right Angle Mount Four LED Array, E Series, Water Clear RED, Two AMBER, and One GREEN)



PCL2004

All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025, .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.



Data Display Products

ARRAY PCB MOUNT LEDs

T-1 $\frac{3}{4}$ VARIABLE ARRAY

Red, Amber, Yellow or Green

Two to Sixteen LEDs per Array

Low Power, Bi-Color, Blinking, Hi-Intensity or Integrated Resistor LEDs

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	
PCLR200N ^[1] (Right Angle Mount)	-M	C (Non-Diffused)	R (RED, All Series)	
	-B	For Diffused, Omit Letter	A (AMBER, All Series)	
	-E	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	
	-U		G (GREEN, All Series)	
	Series Below Do Not Require Encapsulation or Color Code:			
	-XLP ^[2] (Low Power, Diffused Only)			
	-LRG (Bi-Color, Red/Grn, Milky Diffused Only)			
	-BX5V ^[2] (Integrated Resistor, 5Vdc, Diffused Only)			
	-BX12V ^[2] (Integrated Resistor, 12Vdc, Diffused Only)			
	-ERB (Blinking Red, Diffused Only)			
-R2K (Hi-Intensity, Water Clear Red Only)				
-R3K (Hi-Intensity, Water Clear Red Only)				

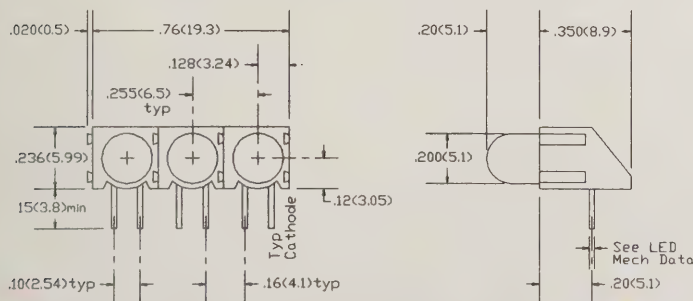


1. Replace N by the number of LEDs in the array; 2 - 16.
 2. Replace X with required color R (RED), A (AMBER) or G (GREEN).
- NOTE: Do not mix series within the model.

TO ORDER:

To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. For arrays with multiple colors, select the Model, Series and Encapsulation then separate each additional Series, Encapsulation, Color Code sequence by a /.

Example: PCLR20011-BR12V (Right Angle Mount Eleven LED Array, Integrated Resistor 12 Vdc, All Diffused RED)
PCLR2004-UCY/UCY/UCG/UCY (Right Angle Mount 4 LED Array, U Series, Non-Diffused, 2 YELLOW, 1 GREEN, 1 YELLOW)



PCLR2003

All dimensions are in inches(mm)
Tolerances: .xx"(x)+/-0.025, .xxx"(xx)+/-0.010"(.25)
Specifications are subject to change without notice.



T-1¾ MEDIUM PROFILE VARIABLE ARRAY

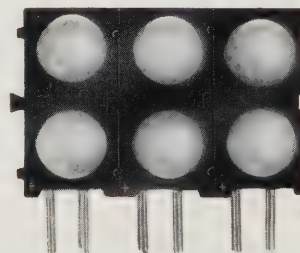
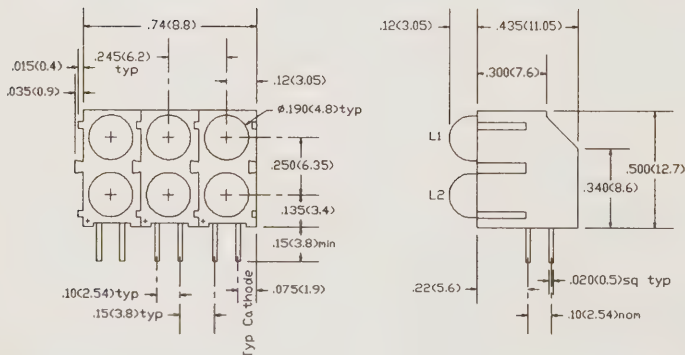
Diffused or Non-Diffused LED Encapsulations

	Top LED (L1)			Bottom LED (L2)		
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Series Listed by Increasing Luminous Intensity	Encapsulation	Color
PCLT195N ⁽¹⁾ (Right Angle Mount)	-S (Diffused Red Only)	C (Non-Diffused)	R (RED, S & L Series)	/S (Diffused Red Only)	C (Non-Diffused)	R (RED, S & L Series)
	-L	For Diffused, Omit Letter	A (AMBER, L Series)	/L	For Diffused, Omit Letter	A (AMBER, L Series)
			G (GREEN, L Series)			G (GREEN, L Series)

- NOTE: Do not mix series within the model.

To build a part number for a uniform color array, select one **BOLD** component from each column in above table except where noted. The first Series, Encapsulation and Color Code is the top LED (L1), the second is the bottom LED (L2). For arrays with multiple colors, select the top and bottom Model, Series and Encapsulation then separate each additional Series, Encapsulation and Color Code sequence by a /.

All dimensions are in inches(mm)
Tolerances: .xx"(x)+/-.025, .xxx"(xx)+/-.010"(.25)
Specifications are subject to change without notice.



PCLT1953

DDP Panel-Mount



Data Display Products





Data Display Products

Panel-Mount LEDs

Data Display Products offers a variety of Panel-Mount packages: Snap-In, Reflector Series, RFI Shielded and Standard Mount are just a few. Easy Installation, a variety of lens colors and profiles along with solder or wire wrap terminations are standard product features.

How to Build a Part Number

If you know the DDP part number you require, please turn to the alpha-numeric product listing on pages 1 and 2  Section. Locate your part number by the Model and check the page(s) listed.


If you do not know the part number, please turn to the Table of Contents on pages 3 and 4  Section. From the headings locate the type of Panel-Mount you require and from the sub-headings choose the size or style of the package you require. Turn to the page(s) listed.

Under each heading in the tables there are several options. Select one option from each. Unless otherwise noted, you may mix and match the options from the different headings to suit your application requirements. Below is a description of the major headings.

Model

This describes the style of each Panel Light. A mechanical drawing for each mount is included near each table.

Series

Please refer to the Discrete LEDs  Section of the catalog where all DDP LEDs are listed along with their specifications.

Encapsulation

The LEDs are available with Diffused, Non-Diffused and Water Clear encapsulations.

Color

The table lists the LED colors available for the series listed. Some series may not be available in some colors.

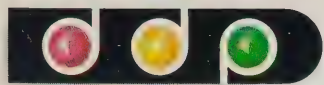
Electrical Assembly

The available electrical assemblies for the models in the table are listed. Select your required assembly noting the design voltage/currents and their minimum and maximum values.

Lens


Many Panel Lights come with lenses. Select the diffusion and color you require.






























Data Display Products

ALPHA-NUMERIC LISTING

The following is an alpha-numeric listing of DDP's Panel-Mount LEDs,  Section.

























Model	Description	Color Code	Pages
.312 ADP/.375 ADP	Panel-Mount LEDs		28
31/34	Panel-Mount LEDs		22-23
41/44/46	Panel-Mount LEDs		24-25
51/53/56	Panel-Mount LEDs		36-39
74	Panel-Mount LEDs		50
91/94/96	Panel-Mount LEDs		30-33
305	Panel-Mount LEDs		22-23
405/461/464	Panel-Mount LEDs		24-25
561/564	Panel-Mount LEDs		36-39
800	Panel-Mount LEDs		48
905	Panel-Mount LEDs		30-31
961/964	Panel-Mount LEDs		30-33
1732	Panel-Mount LEDs		49
CS24/CS24T	Panel-Mount LEDs		29
CSH40	Panel-Mount LEDs		29
CSH90	Panel-Mount LEDs		34
F41/F44/F46/F461/F464	Panel-Mount LEDs		26-27
L92	Panel-Mount LEDs		34
NW3	Panel-Mount LEDs		23
NW4	Panel-Mount LEDs		29
NW5	Panel-Mount LEDs		39
NW9	Panel-Mount LEDs		33
P44	Panel-Mount LEDs		12
P205	Panel-Mount LEDs		11
P405	Panel-Mount LEDs		18-19





ALPHA-NUMERIC LISTING

Data Display Products

Model	Description	Color Code	Pages
P406	Panel-Mount LEDs		14
P407	Panel-Mount LEDs		16
PC3	Panel-Mount LEDs		7
PM180	Panel-Mount LEDs		9
PM190	Panel-Mount LEDs		10
PMC-2/PMC-3	Panel-Mount LEDs		5
PML30/PML40	Panel-Mount LEDs		6
PMR125	Panel-Mount LEDs		40-41, 44-45
PMR200	Panel-Mount LEDs		42-43, 46-47
PR44	Panel-Mount LEDs		13
PR405	Panel-Mount LEDs		20-21
PR406	Panel-Mount LEDs		15
PR407	Panel-Mount LEDs		17
PS40/PS44	Panel-Mount LEDs		28
PS90/PS90T	Panel-Mount LEDs		34-35
PS200	Panel-Mount LEDs		8
RC90	Panel-Mount LEDs		34
SH40	Panel-Mount LEDs		29
SH90	Panel-Mount LEDs		34
SQ375	Panel-Mount LEDs		51
TC3	Panel-Mount LEDs		23
TC4	Panel-Mount LEDs		29
TC5	Panel-Mount LEDs		39
TC9	Panel-Mount LEDs		33



Alpha-Numeric Listing	1-2
Table of Contents	3-4
Discrete Panel Mount LEDs	
Clips	5
Lens Clips	6
Wide Angle Panel Mount LEDs	
LEDy Bug ®	7
Panel Mount Sockets	
T-1¾ LEDs & LEDy Bug ®	8
Panel Mount LEDs with Sockets	
Low Profile EZ Mount	9
Medium Profile EZ Mount	10
Snap-In Panel Mount	
T-1	11
Flush Mount, External Resistor Required	12
Flush Mount, Built-In Resistor	13
T-1¾ Low Profile, External Resistor Required	14
T-1¾ Low Profile, Built-In Resistor	15
T-1¾ Medium Profile, External Resistor Required	16
T-1¾ Medium Profile, Built-In Resistor	17
T-1¾, External Resistor Required	18-19
T-1¾, Built-In Resistor	20-21
.190" Mount Panel Lights	
Standard	22-23
.250" Mount Panel Light	
Standard	24-25
Built-In Driver	26-27
Mounting Hardware	28-29



.290" Mount Panel Lights

Standard	30-31
Multi-Chip	32-33
Mounting Hardware	34
Water Tight Socket	35

.312" Mount Panel Light

Standard	36-37
Multi-Chip	38-39

Panel Mount Reflector

T-1	40-41
T-1¾	42-43

Water Tight Panel Mount

T-1, Reflector	44-45
T-1¾, Reflector	46-47

Bubble Light Panel Mount

.290" Mount	48
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Metal Bodied Panel Light

17/32" Mount	49
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RFI Shielded Panel Light

.375" Mount	50
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Square Tri-Color Panel Mount

.375" Square Mounting Hole	51
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DISCRETE PANEL MOUNT LEDs

CLIPS

Data Display Products

For T-1 and T-1¾ LEDs

Simple Installation

For Panels from .060"(1.52) to .125"(3.13) Thick

Part Number LED Size, (Model)
PMC-3 T-1, (Model 125)
PMC-2 T-1¾, Low, Medium & Standard Profiles, (Models 180, 190 & 200)

MOUNTING INSTRUCTIONS:

For panels thicker than .060"(1.52) to .125"(3.18), counterboring is required.

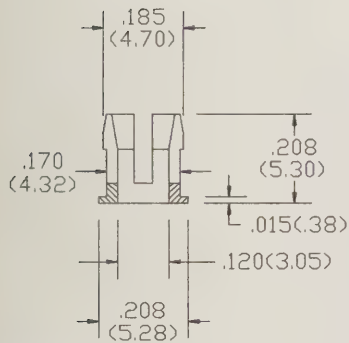
For PMC-2, drill a .257"(6.15) hole in panel. For PMC-3, drill a .185"(4.70) hole in panel. Deburr but do not chamfer.

Snap in clip from the front of the panel. Holding tightly or using a nut driver, press the LED into the back of the clip. Slip the retaining ring onto the back of the clip and press tightly. Two nut drivers may be used.

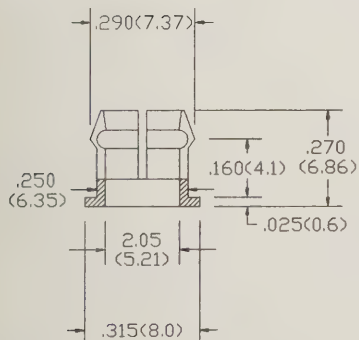
TO ORDER:

Select part number in **BOLD** from first column in above table.

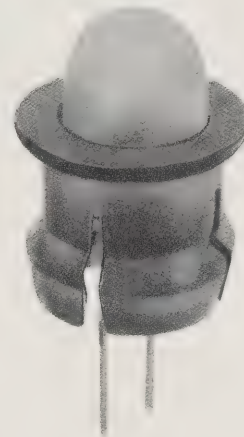
Example: PMC-2 (Panel Mount Clip for T-1¾ LED)



PMC-3



PMC-2



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025"(.63), .xxx*(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

DISCRETE PANEL MOUNT LEDs

LENS CLIPS

For T-1 and T-1¼ LEDs

Fresnel Lens with 180° Viewing Angle

Lens Colors: Red, Amber, Yellow, Green & Water Clear

Part Number LED Size, (Model)	Lens Color
PML30 T-1, (Model 125)	-CR (Red) -CA (Amber) -CY (Yellow)
PML40 T-1¼, Low, Medium & Standard Profiles, (Models 180, 190 & 200)	-CG (Green) -CW (Water Clear)

MOUNTING INSTRUCTIONS:

Lenses are suitable for installation on panels from .060"(1.52) to .125"(3.18) thick. Counterboring is required for thicker panels.

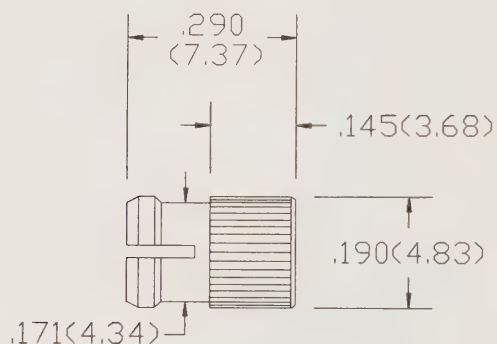
For PML-40, drill a .250"(6.35) hole in panel. For PML-30, drill a .171"(4.34) hole in panel. Deburr but do not chamfer.

Snap in lens from the front of the panel and holding tightly snap the LED into the back of the lens.

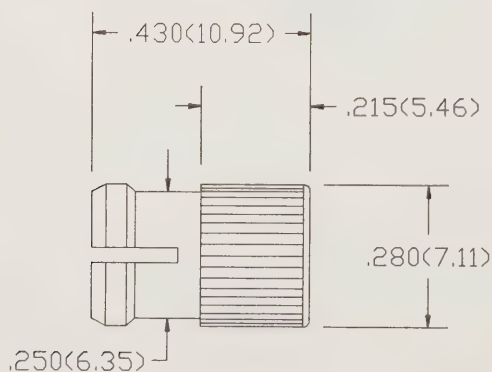
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table.

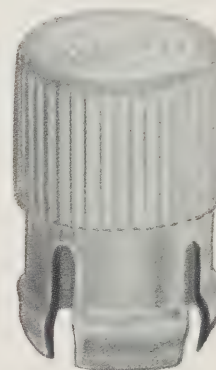
Example: PML30-CW (Panel Mount Water Clear Lens for T-1 LED)



PML30



PML40



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/-.025"(.63), .xxx"(xx) +/-.010"(.25)
Specifications are subject to change without notice.



WIDE ANGLE PANEL MOUNT LEDs

Data Display Products

LEDy BUG®

Red, Amber, Amber/Yellow, Yellow or Green

Fresnal Lens with 180° Viewing Angle

Panel Mount Sockets Available

Model	Series Listed by Increasing Luminous Intensity	Encapsulation & Color	Electrical Assembly	Lens Color ^[1]
PC3	-B	CR (RED, All Series)	2 ^[2]	-CR (Red)
	-E	CA (AMBER, All Series)		-CA (Amber)
	-P	CAY (AMBER/YELLOW, P Series Only) ^[3]		-CY (Yellow)
	-U	CY (YELLOW, E, U & P Series Only)		-CG (Green)
		CG (GREEN, All Series)		-CW (Water Clear)
				-S (Smoke)

1. Colored lenses must match LED colors, Water Clear and Smoke lenses may be selected with any LED color.

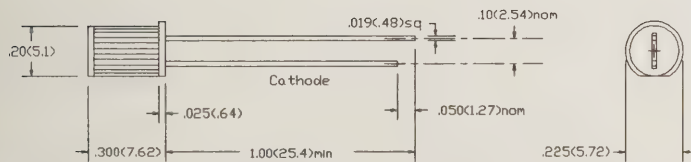
2. External resistor required.

3. Select -CA (Amber) lens with CAY (AMBER/YELLOW) LED.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PC3-PCY2-CY (LEDy BUG®, P Series, YELLOW, Yellow Lens)
PC3-ECR2-CW (LEDy BUG®, E Series, RED, Water Clear Lens)

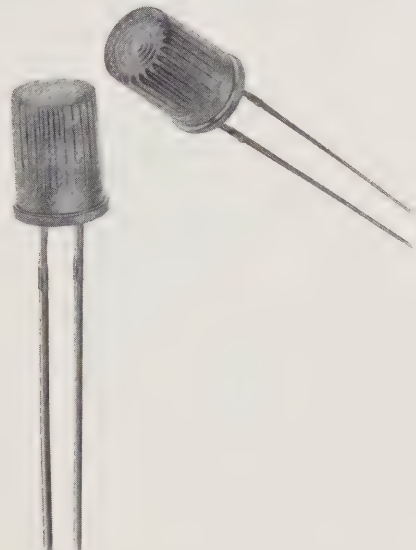


PC3

All dimensions are in inches(mm)

Tolerances: .xx(.x) +/- .025"(.63), .xxx(.xx) +/- .010"(.25)

Specifications are subject to change without notice.





Data Display Products

PANEL MOUNT SOCKETS

T-1 $\frac{3}{4}$ LEDs & LEDy BUG

Mounting Diameter .250"(6.35)

Optional Wire Leads

5V TO 48V AC or DC

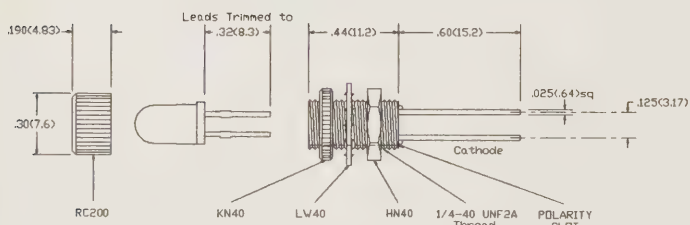
Model	Wires (Optional)	Bezel Finish	Electrical Assembly ^[1]				
				Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
PS200 ^[2]	W Omit W for Terminals	-B (Black) -S (Silver)	-5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3
			-5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
			-12	12V/18mA	5V/ 5mA	15V/23mA	5-15
			-12H	12V/27mA	5V/ 8mA	15V/36mA	5-15
			-24	24V/ 9mA	20V/ 7.5mA	30V/12mA	—
			-24H	24V/17mA	15V/10mA	28V/20mA	—
			-28	28V/11mA	15V/ 5.5mA	30V/12mA	—
			-28H	28V/16.5mA	15V/ 8mA	30V/18mA	—
			-48	48V/10mA	30V/ 6mA	50V/10.2mA	—
			-48H	48V/15mA	30V/ 9mA	50V/16mA	—

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less.
2. For a socket without built-in resistor, omit Electrical Assembly (PS200-B, PS200W-S).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PS200W-B-24H (Socket with 6" Wire Leads, Black Bezel, 24Vdc at 17mA)



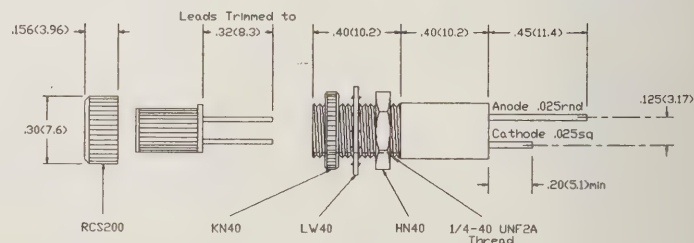
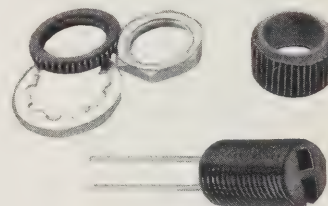
PS200 Without Resistor

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.



PS200 With Resistor

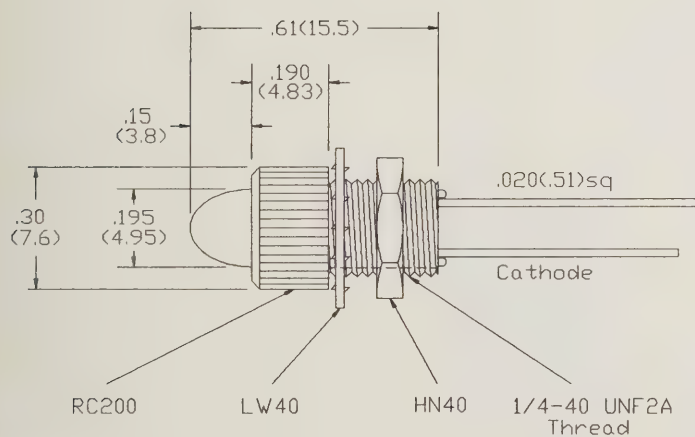


LOW PROFILE EZ MOUNT

Optional Wire Leads

Model	Wires Optional	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
PM180	W	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[1]
	For Std Leads, Omit W	-E	For Diffused, Omit Letter	A (AMBER, All Series)	
				Y (YELLOW, E Series Only)	
				G (GREEN, All Series)	

Example: PM180W-ECY2 (Low Profile EZ Mount Panel Light with 6" Wire Leads, E Series, Non-Diffused YELLOW, External Resistor Required)
PM180-BR2 (Low Profile EZ Mount Panel Light with Std Leads, B Series, Diffused RED, External Resistor Required)



PM180



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/-.025"(.63), .xxx"(xx) +/-.010"(.25)
Specifications are subject to change without notice.



Data Display Products

PANEL MOUNT LEDs WITH SOCKETS

MEDIUM PROFILE EZ MOUNT

Red, Amber or Green

Mounting Diameter .250"(6.35)

Optional Wire Leads

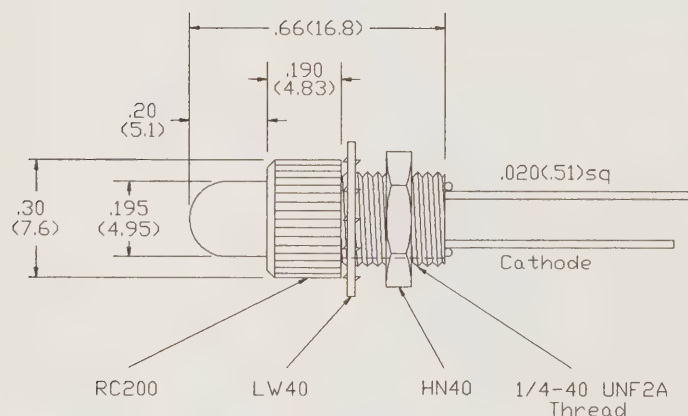
Model	Wires Optional	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
PM190	W For Std Leads, Omit W	-S (Diffused Red Only) -L	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series) A (AMBER, L Series Only) G (GREEN, L Series Only)	2 ^[1]

1. External resistor required.

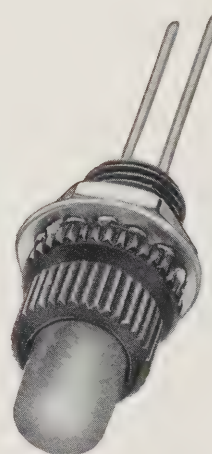
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table.

Example: PM190W-SR2 (Medium Profile EZ Mount Panel Light with 6" Wire Leads, S Series, Diffused RED, External Resistor Required)
PM190-LCG2 (Medium Profile EZ Mount Panel Light with Std Leads, L Series, Non-Diffused GREEN, External Resistor Required)



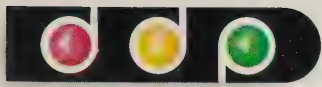
PM190



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.





SNAP-IN PANEL MOUNT


Data Display Products

T-1

For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .155"(3.94) to .158"(4.01)

No Mounting Hardware Required

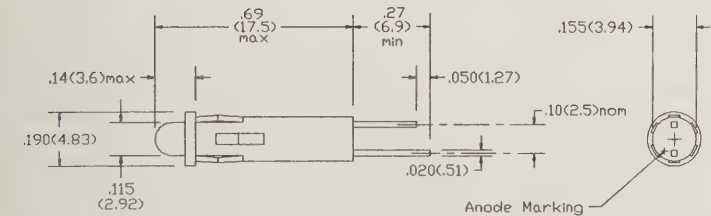
Model	Wires Optional	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	
P205	W For Std Leads, Omit W	-M (Diffused Only)	C (Non-Diffused)	R (RED, All Series)	2 ^[1]	----	----	----	—
		A (AMBER, All Series)		5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3	
		-B	W (Water Clear, E & U Series Only)	AY (AMBER/ YELLOW, P Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
		-E		12	12V/18mA	5V/ 5mA	15V/23mA	5-15	
		-P (Non-Diffused Only)		12H	12V/27mA	5V/ 8mA	15V/36mA	5-15	
		-U		24	24V/ 9mA	20V/ 7.5mA	30V/12mA	—	
				24H	24V/17mA	15V/10mA	28V/20mA	—	
		Series Below Do Not Require Encapsulation or Color Code:							
		-XLP ^{[2] [3]} (Low Power, Diffused Only)							
		-RG (Bi-Color, Red /Grn, Milky Diffused)							
									

- External resistor required.
- Replace X with required color R (RED), A (AMBER) or G (GREEN).
- Contact factory for Low Power Electrical Assembly data.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

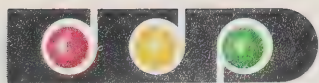
Example: P205W-PCAY2 (T-1 Snap-In Panel Light with 6" Wire Leads, P Series, Non-Diffused AMBER/YELLOW, External Resistor Required)
 P205-UWY12H (T-1 Snap-In Panel Light with Std Leads, U Series, Water Clear YELLOW, 12V at 27mA)



P205

Standard Wire Leads: 6.0" total length, .50" stripped at tips
 Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
 For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
 Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
 Specifications are subject to change without notice.



Data Display Products

SNAP-IN PANEL MOUNT

FLUSH MOUNT, EXTERNAL RESISTOR REQUIRED

For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

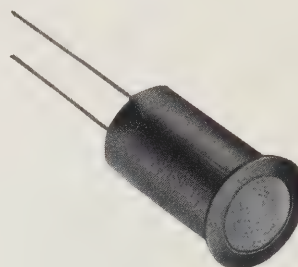
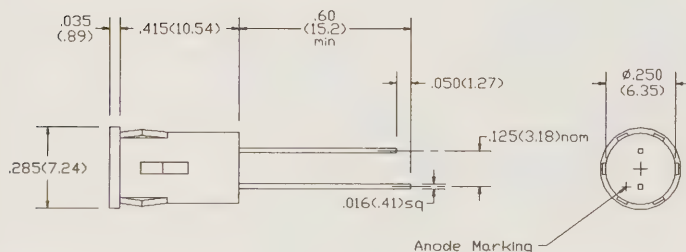
Model	Wires Optional	Series	Encapsulation & Color	Electrical Assembly	Lens ^[1]
P44	W For Std Leads, Omit W	-P	CR (RED) CA (AMBER) CAY (AMBER/YELLOW) ^[3] CY (YELLOW) CG (GREEN)	2 ^[2]	-CR (Red) -CA (Amber) -CY (Yellow) -CG (Green) -CW (Water Clear) -S (Smoke)

1. Colored lenses must match LED colors, Water Clear and Smoke lenses may be selected with any LED color.
2. External resistor required.
3. Select -CA (Amber) lens with CAY (AMBER/YELLOW) LED.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **P44W-PCAY2-CA** (Flush Mount, Snap-In Panel Light with 6" Wire Leads, AMBER/YELLOW with Amber Lens, External Resistor Required)
P44-PCG2-CG (Flush Mount, Snap-In Panel Light with Std Leads, GREEN with Green Lens, External Resistor Required)



P44

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

SNAP-IN PANEL MOUNT FLUSH MOUNT, BUILT-IN RESISTOR

For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

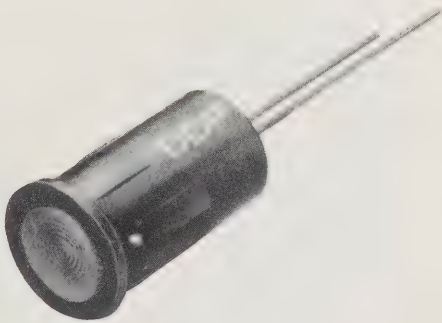
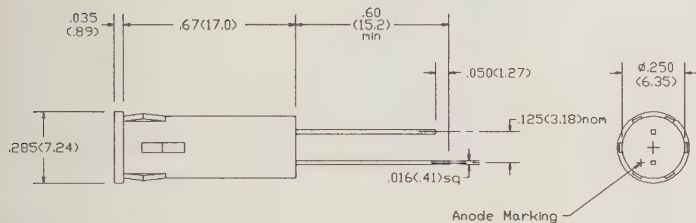
Model	Wires Optional	Series	Encapsulation & Color	Electrical Assembly ^[1]					Lens ^[2]
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	
PR44	W For Std Leads, Omit W	-P	CR (RED)	5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3	-CR (Red)
			CA (AMBER)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5	-CA (Amber)
			CAY (AMBER/YELLOW) ^[3]	12	12V/18mA	5V/ 5mA	15V/23mA	5-15	-CY (Yellow)
			CY (YELLOW)	12H	12V/27mA	5V/ 8mA	15V/36mA	5-15	-CG (Green)
			CG (GREEN)	24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---	-CW (Water Clear)
				24H	24V/17mA	15V/10mA	28V/20mA	---	-S (Smoke)
				28	28V/11mA	15V/ 5.5mA	30V/12mA	---	
				28H	28V/16.5mA	15V/ 8mA	30V/18mA	---	

- 1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less.
- 2. Colored lenses must match LED colors, Water Clear and Smoke lenses may be selected with any LED color.
- 3. Select -CA (Amber) lens with CAY (AMBER/YELLOW) LED.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PR44**W**-PCA12**H**-CA (Flush Mount, Snap-In Panel Light with 6" Wire Leads, AMBER with Amber Lens, 12Vdc at 27mA)
PR44-PCY5-CY (Flush Mount, Snap-In Panel Light with Std Leads, YELLOW with Yellow Lens, 5Vdc at 17mA)



PR44

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xxx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



SNAP-IN PANEL MOUNT

Data Display Products

T-1 $\frac{3}{4}$ LOW PROFILE, EXTERNAL RESISTOR REQUIRED

For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

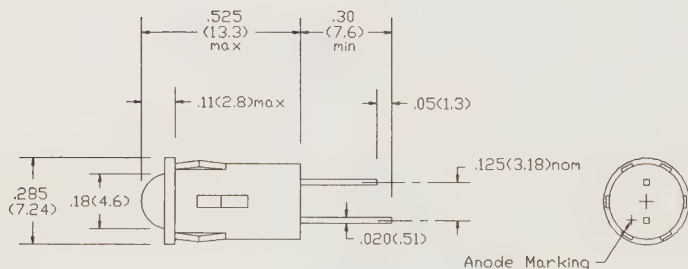
Model	Wires Optional	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
P406	W For Std Leads, Omit W	-B -E	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series) A (AMBER, All Series) Y (YELLOW, E Series Only) G (GREEN, All Series)	2 ⁽¹⁾

1. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **P406W-BCA2** (T-1 $\frac{3}{4}$ Low Profile Snap-In Panel Light with 6" Wire Leads, B Series, Non-Diffused AMBER, External Resistor Required)
P406-EG2 (T-1 $\frac{3}{4}$ Low Profile Snap-In Panel Light with Std Leads, E Series, Diffused GREEN, External Resistor Required)



P406



Standard Wire Leads: 6.0" total length, .50" stripped at tips
 Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
 For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
 Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
 Specifications are subject to change without notice.



Data Display Products

SNAP-IN PANEL MOUNT

T-1¾ LOW PROFILE, BUILT-IN RESISTOR

For Panels .031"(79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

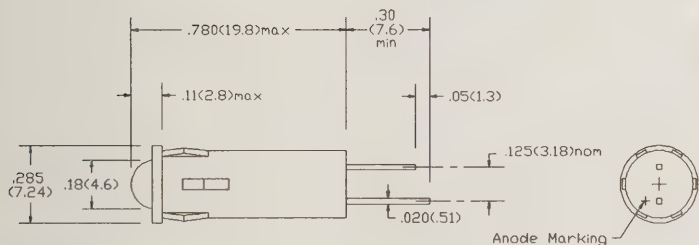
Model	Wires Optional	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
PR406	W For Std Leads, Omit W	-B -E	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3
				A (AMBER, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
					12	12V/18mA	5V/ 5mA	15V/23mA	5-15
				Y (YELLOW, E Series Only)	12H	12V/27mA	5V/ 8mA	15V/36mA	5-15
					24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---
				G (GREEN, All Series)	24H	24V/17mA	15V/10mA	28V/20mA	---
					28	28V/11mA	15V/ 5.5mA	30V/12mA	---
					28H	28V/16.5mA	15V/ 8mA	30V/18mA	---

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less.

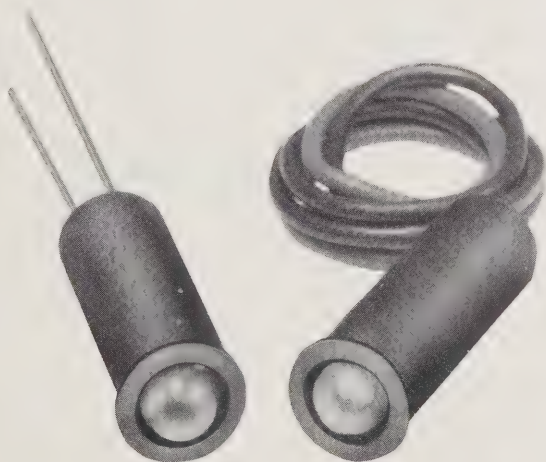
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PR406W-BCG5H (Low Profile, Snap-In Panel Light with 6" Wire Leads, B Series, Non-Diffused GREEN 5Vdc at 27mA)
PR406-EY24H (Low Profile, Snap-In Panel Light with Std Leads, E Series, Diffused YELLOW, 24Vdc at 17mA)

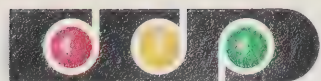


PR406



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.



SNAP-IN PANEL MOUNT

Data Display Products T-1 $\frac{3}{4}$ MEDIUM PROFILE, EXTERNAL RESISTOR REQUIRED

For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

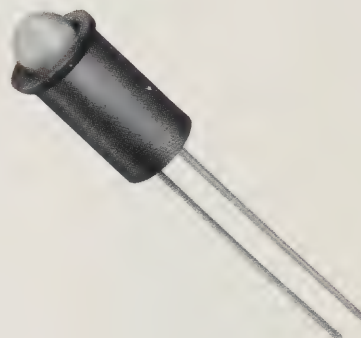
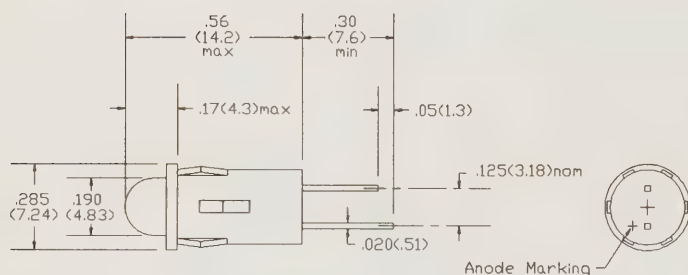
Model	Wires Optional	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
P407	W For Std Leads, Omit W	-S (Diffused Red Only) -L	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series) A (AMBER, L Series Only) G (GREEN, L Series Only)	2 ^[1]

1. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

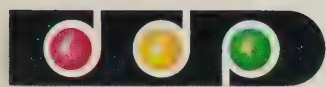
Example: P407**W-SR2** (T-1 $\frac{3}{4}$ Medium Profile Snap-In Panel Light with 6" Wire Leads, S Series, Diffused RED, External Resistor Required)
P407-LCA2 (T-1 $\frac{3}{4}$ Medium Profile Snap-In Panel Light with Std Leads, L Series, Non-Diffused AMBER, External Resistor Required)



P407

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xxx"(.x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

SNAP-IN PANEL MOUNT

T-1 3/4 MEDIUM PROFILE, BUILT-IN RESISTOR

For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

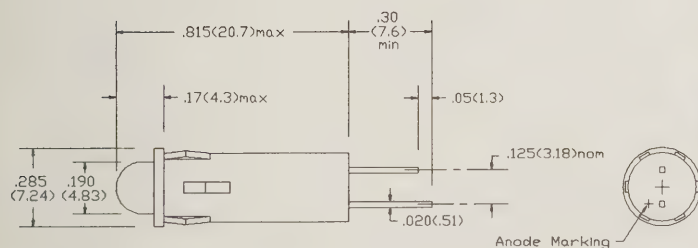
Model	Wires Optional	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
PR407	W For Std Leads, Omit W	-S ^[2] (Diffused Red Only) -L	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series) A (AMBER, L Series Only) G (GREEN, L Series Only)	5 ^[3]	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3
					5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
					12	12V/18mA	5V/ 5mA	15V/23mA	5-15
					12H	12V/27mA	5V/ 8mA	15V/36mA	5-15
					24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---
					24H	24V/17mA	15V/10mA	28V/20mA	---
					28	28V/11mA	15V/ 5.5mA	30V/12mA	---
					28H	28V/16.5mA	15V/ 8mA	30V/18mA	---

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (PR407W-LCG28D).
2. Not available with 5H or 12H Electrical Assembly.
3. When used with S Series, Max Voltage/Current is 6.4V/30mA.

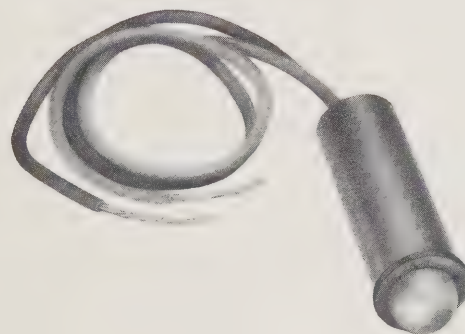
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PR407W-SR5 (Medium Profile, Snap-In Panel Light with Wire Leads, S Series, Diffused RED, 5Vdc at 17mA)
PR407-LCG24HD (Medium Profile, Snap-In Panel Light with Std Leads, L Series, Non-Diffused GREEN, 24Vac)



PR407



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

SNAP-IN PANEL MOUNT

T-1 $\frac{3}{4}$, EXTERNAL RESISTOR REQUIRED

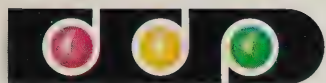
For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

Model	Wires Optional	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
P405	W For Std Leads, Omit W	-M -B -E -U Series Below Do Not Require Encapsulation or Color Code: -XLP ^[2] (Low Power, Diffused Only) -LRG (Bi-Color, Red /Grn, Milky Diffused Only) -BX5V ^{[2] [3]} (Integrated Resistor for 5Vdc, Diffused Only) -BX12V ^{[2] [3]} (Integrated Resistor for 12Vdc, Diffused Only) -ERB ^[3] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	C (Non-Diffused) For Diffused, Omit Letter W (Water Clear, E & U Series Only)	R (RED, All Series) A (AMBER, All Series) Y (YELLOW, E & U Series Only) G (GREEN, All Series)	2 ^[1]

1. External resistor required.
2. Replace X with required color R (RED), A (AMBER) or G (GREEN).
3. Omit Electrical Assembly 2 in part number (P405-BX5V, P405-BX12V, P405-ERB). External resistor is not required with these series when used at the design voltage (see Discrete ■ Section, pages 15 and 16 for electrical data).



Data Display Products

SNAP-IN PANEL MOUNT

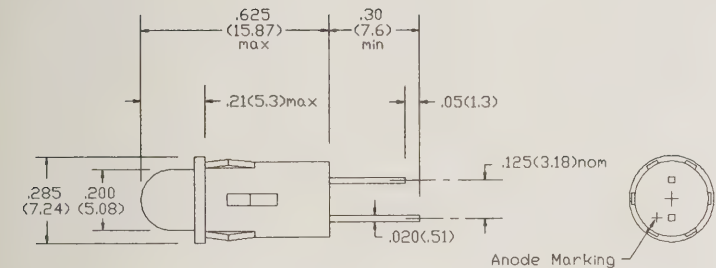
T-1³/₄, EXTERNAL RESISTOR REQUIRED



TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

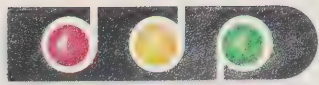
Example: P405W-LRG2 (T-1³/₄ Snap-In Panel Light with 6" Wire Leads, Milky Diffused Bi-Color RED/GRN, External Resistor Required)
P405-UWR2 (T-1³/₄ Snap-In Panel Light with Std Leads, U Series, Water Clear RED, External Resistor Required)



P405

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

SNAP-IN PANEL MOUNT

T-1¾, BUILT-IN RESISTOR

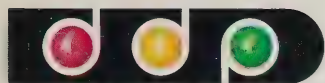
For Panels .031"(.79) to .125"(3.18) Thick

Mounting Diameter .249"(6.32) to .252"(6.40)

No Mounting Hardware Required

Model	Wires Optional	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
PR405	W For Std Leads, Omit W	-M	C (Non-Diffused)	R (RED, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3
		-B		A (AMBER, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
		-E	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/ 5mA	15V/23mA	5-15
		-U		G (GREEN, All Series)	12H	12V/27mA	5V/ 8mA	15V/36mA	5-15
		Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[2] [3]} (Low Power, Diffused Only) -X-2 ^{[2] [3]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color, Red /Grn, Milky Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)			24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---
					24H	24V/17mA	15V/10mA	28V/20mA	---
					28	28V/11mA	15V/ 5.5mA	30V/12mA	---
					28H	28V/16.5mA	15V/ 8mA	30V/18mA	---
					48	48V/10mA	30V/ 6mA	50V/10.2mA	---
					48H	48V/15mA	30V/ 9mA	50V/16mA	---
					60	60V/ 7mA	40V/ 4.5mA	65V/ 8mA	---
					60H	60V/12mA	40V/ 8mA	70V/14.5mA	---
					110 ^[4]	110Vac/ 1.5RMS	----	130Vac/ 1.8RMS	130
					110H ^[4]	110Vac/ 3RMS	----	130Vac/ 3.9RMS	130
					220 ^[4]	220Vac/ 1RMS	----	250Vac/ 1.4RMS	250

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (PR405-BCR24HD). For 110dc and 220dc, insert DC after the Electrical Assembly (PR405-R110DC). 110H is available in Vac only.
2. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
3. Contact factory for Electrical Assembly data.
4. For 110V and 220V AC or DC, omit Series. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (PR405-X110-C, PR405-X220DC, PR405-X110H-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

SNAP-IN PANEL MOUNT

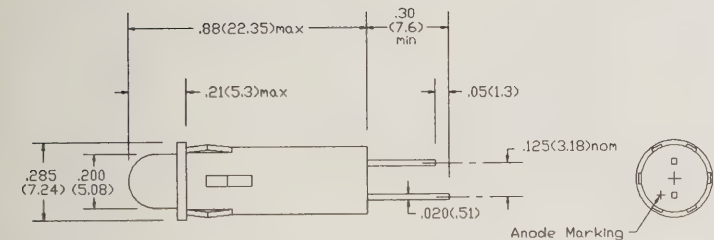
T-1³/₄, BUILT-IN RESISTOR



TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

Example: PR405W-R2K24H (T-1³/₄ Snap-In Panel Light with 6" Wire Leads, Hi Intensity RED, 24Vdc at 17mA)
PR405-BG12 (T-1³/₄ Snap-In Panel Light with Std Leads, B Series, Diffused GREEN, 12Vdc at 18mA)



PR405



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(.x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

.190" MOUNT PANEL LIGHTS

STANDARD

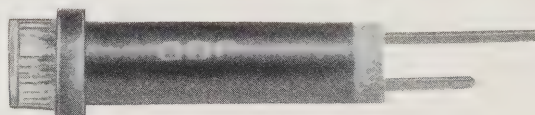
Red, Amber, Amber/Yellow, Yellow or Green

Various Lens Sizes and Projections

Mounting Hardware Provided

Model	Wires	Series B - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]					Lens		Bezel Color	
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	Diffu- sion	Color		
305 ^[2]	W	-B	C (Non- Diffused)	R (RED, B, E, P & U)	2 ^[3]	---	---	---	--	-C Clear	R Red	O Black	
31	Omit W for Std Ter- min- als	-E	W (Water Clear, E & U Series Only)	A (AMB, B, E, P, & U)	5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3	-N Trans- lucent	A Amber	9 White	
34		-P			5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5		Y Yel- low		
		-U			12	12V/18mA	5V/ 5mA	15V/23mA	5-15		G Green		
		Series Below Do Not Require Encapsulation or Color Code:			12H	12V/27mA	5V/ 8mA	15V/36mA	5-15		S Smoke		
		-XLP ^{[4] [5]} (Low Power, Diffused Only)			24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---		W ^[6] Water Clear		
		-RG ^[7] (Bi-Color, Red /Grn, Milky Diffused)			24H	24V/17mA	15V/10mA	28V/20mA	---				
					28	28V/11mA	15V/ 5.5mA	30V/12mA	---				
					28H	28V/16.5mA	15V/ 8mA	30V/18mA	---				
				Y (YEL, E, P & U)									
				G (GRN, B, E, U & P)									

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less.
2. This model has no lens, the Lens Code in the part number describes the LED encapsulation. For a Non-Diffused LED, select C for Encapsulation and select CX (X Represents Color) for the Lens Code (305-BCG5H-CGO). For a Diffused LED, omit letter for Encapsulation and select NX for the Lens Code (305-BG5H-NGO). For a Water Clear LED, select W for Encapsulation and CW for the Lens Code (305-EWG5H-CWO).
3. External resistor required.
4. Replace X with required color R (RED), A (AMBER) or G (GREEN).
5. Contact factory for Low Power Electrical Assembly data.
6. Select Lens Diffusion C only.
7. Select CW Lens Code only.





Data Display Products

.190" MOUNT PANEL LIGHTS

STANDARD

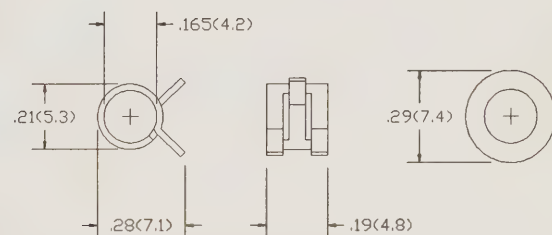
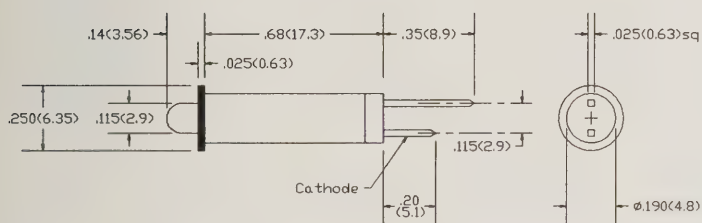


TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

Example: 31W-ECY24H-CYO (Std Panel Light, Model 31 with 6" Wire Leads, E Series, YELLOW, 24Vdc at 17mA, Clear Yellow Lens, Black Bezel)
34-RG12-CW9 (Std Panel Light, Model 34 with Std Terminals, Bi-Color RED/GRN, 12Vdc at 18mA, Water Clear Lens, White Bezel)

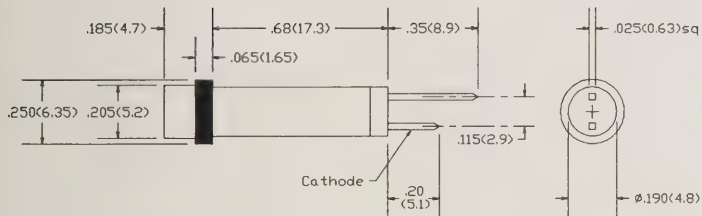
305



TC3 & NW3, Mounting Hardware

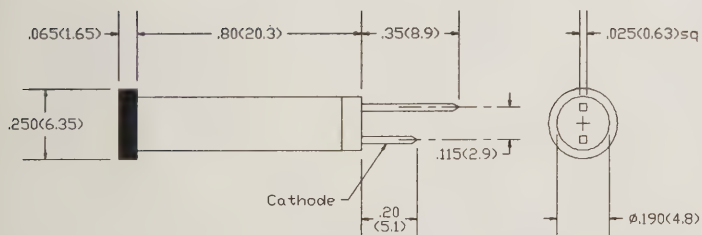
Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

31



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

34





Data Display Products

.250" MOUNT PANEL LIGHTS

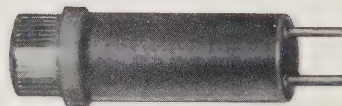
STANDARD

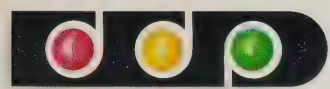
Red, Amber, Yellow or Green

Various Lens Sizes and Projections

Mounting Hardware Provided

Cart-ridge	Model	Wires	Series X - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]				Lens		Bezel Color
							Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	Diffu- sion	
C ^[2] Omit C for Non Cart- ridge Panel Light	405 ^[3]	W	-X ^{[4] [5]}	C (Non- Diffused)	R (RED, B, E, & U)	2 ^[6]	----	----	----	---	-C Clear -N Trans- lucent 	





Data Display Products

.250" MOUNT PANEL LIGHTS

STANDARD



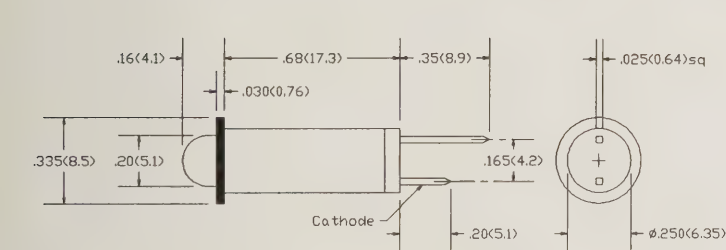
1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (41-BA48HD-CAO). For 110dc to 220dc, insert DC after the Electrical Assembly (44-R110DC-CR0). 110H is available in Vac only.
2. The Cartridge is for panel lights mounted in sockets, select std terminals only, do not select the W option.
3. This model has no lens, the Lens Code in the part number describes the LED encapsulation. For a Non-Diffused LED, select C for Encapsulation and select CX (X represents color) for the Lens Code (405-BCG5H-CGO). For a Diffused LED, omit letter for Encapsulation and select NX for the Lens Code (405-BG5H-NGO). For a Water Clear LED, select W for Encapsulation and CW for the Lens Code (405-EWG5H-CWO).
4. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also Available in O (ORANGE).
5. Omit Encapsulation Code.
6. External resistor required.
7. Contact factory for Electrical Assembly data.
8. Select Lens Diffusion C only.
9. Select CW Lens Code only.
10. For 110V and 220V AC or DC, omit Series and Encapsulation Code. Use Color Code only, (464-X110-CXO, where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN). In the Lens Code X may be W (Water Clear) or S (Smoke) also.).

TO ORDER:

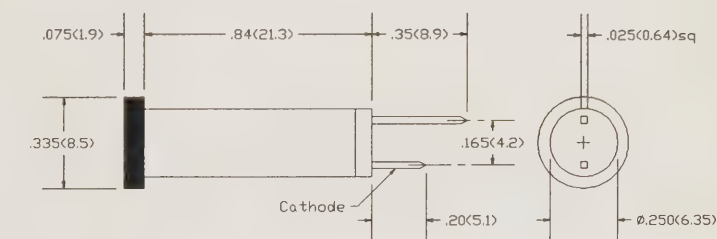
To build a part number, select one **BOLD** component from each column in the table except where noted.

Example: 44W-R12H-CRO (Std Panel Light, Model 44 with 6" Wires, X Series, RED, 12Vdc at 27mA, Clear Red Lens, Black Bezel)

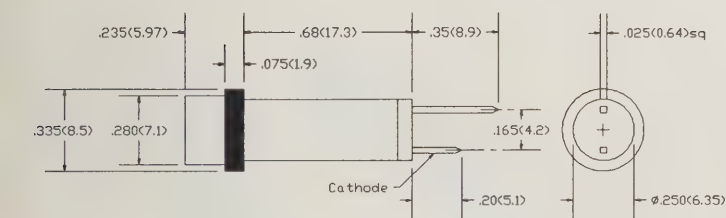
C461-R3K48H-CW9 (Std Cartridge Panel Light, Model 461, Hi-Intensity RED, 48 Vdc at 15mA, Water Clear Lens, White Bezel)



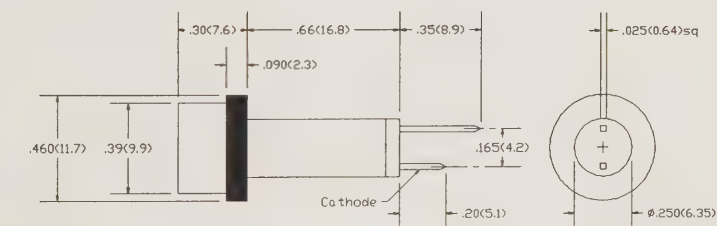
405



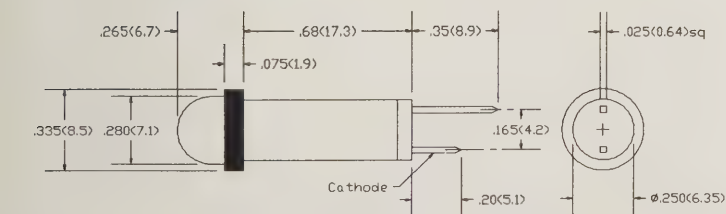
44



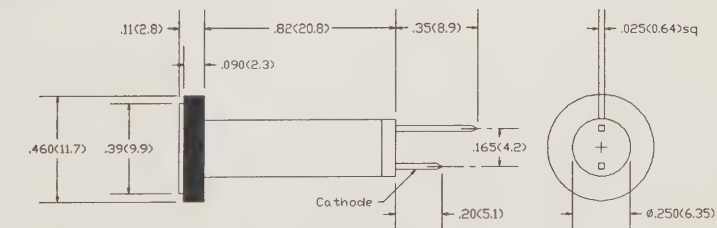
41



461



46



464

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

.250" MOUNT PANEL LIGHTS

BUILT-IN DRIVER

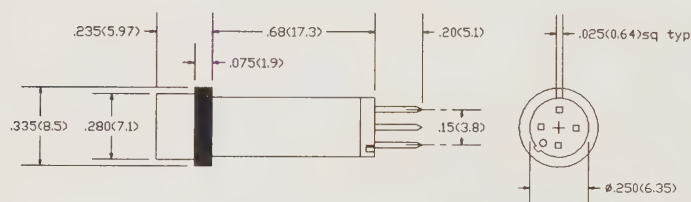
Incorporates a Driving Transistor

Two Circuit Types Available

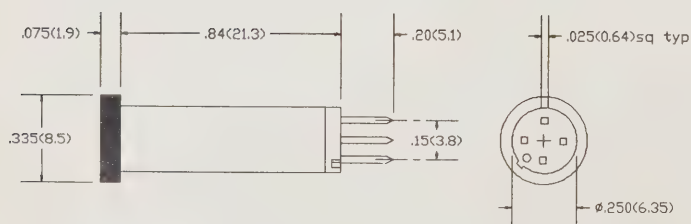
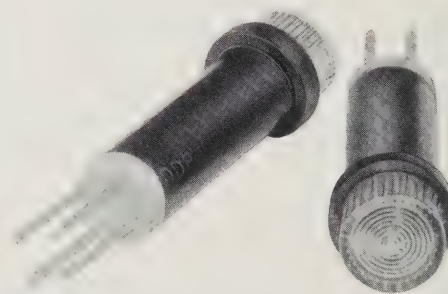
Mounting Hardware Provided

Cart-ridge	Model	Circuit Type ^[1]	Color	Electrical Assembly ^[2]	Test Terminal	Lens		Bezel Color
						Diffu-sion	Color	
C ^[3] Omit C for Non Cart-ridge Panel Light	F41	-A (Logic 1)	R (RED)	5	T	-C Clear	R Red	O Black
	F44	-D (Logic 0)	A (AMB)	5H	Omit T if Test Terminal is Not Required	-N Trans-lucent	A Amber	9 White
	F46							
	F461							
	F464							
							G Green	
							S Smoke	
							W ^[4] Water Clear	

1. Refer to circuit diagrams on the next page for Circuit A (Logic 1) and Circuit D (Logic 0).
2. Refer to Electrical Assembly Table on the next page for electrical data.
3. The Cartridge is for panel lights mounted in sockets.
4. Select Lens Diffusion C only.



F41



F44

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.





Data Display Products

.250" MOUNT PANEL LIGHTS

BUILT-IN DRIVER



Electrical Assembly				
Circuit Type		Assembly ^[1]		Unit
		AX5 DX5	AX5H DX5H	
Vcc		5	5	Vdc
Icc		20	30	mA
Vin	ON	All A Circuits=2.4min All D Circuits=(Vcc-4)max		Vdc
	OFF	All A Circuits=0.6max All D Circuits=(Vcc-0.6)max (Non Sink Condition)		
Iin	ON	0.8		mA
	OFF	-0.01		

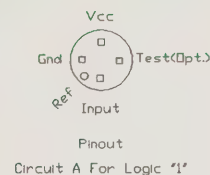
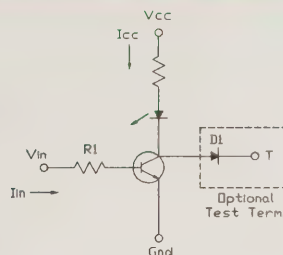
1. X Represents any color R (RED), A (AMBER) or G (GREEN).

TO ORDER:

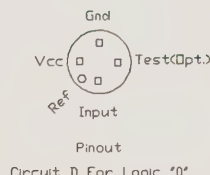
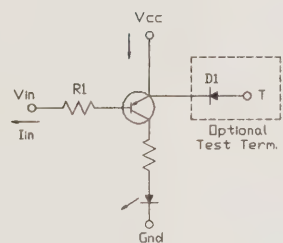
To build a part number, select one **BOLD** component from each column in the table on the facing page except where noted.

Example: F41-AG5HT-CGO (Panel Light with Built-In Driver, Model 41, Circuit A for Logic 1, GREEN, Test Terminal Included, Clear Green Lens, Black Bezel)

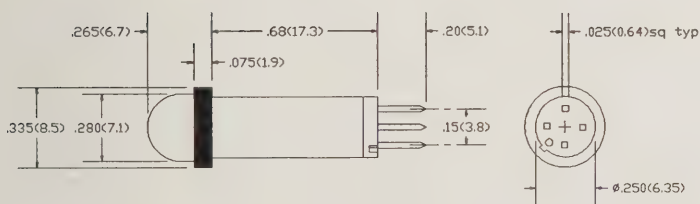
F44-DR5-CWO (Panel Light with Built-In Driver, Model 44, Circuit D for Logic 0, RED, No Test Terminal, Water Clear Lens, Black Bezel)



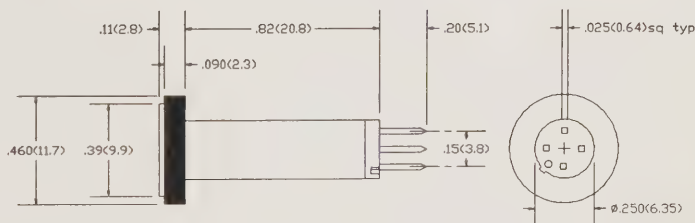
Circuit A For Logic '1'



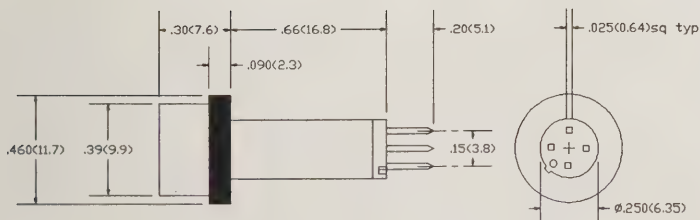
Circuit D For Logic '0'



F46

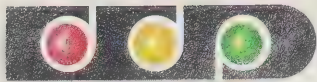


F464



F461

All dimensions are in inches(mm)
Tolerances: .xx(.x)+/-0.25"(.63), .xxx(.xx)+/-0.10"(.25)
Specifications are subject to change without notice.



Data Display Products

.250" MOUNT PANEL LIGHTS

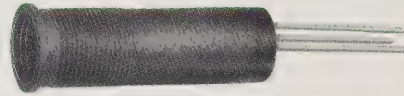
MOUNTING HARDWARE

Sockets for Cartridge Panel Lights

Panel Adaptors

Gold or Tin Plated Crimp Terminals

Sockets (Model 40 Cartridges)	
Model	Number of Pins
PS40 (Use With Cartridge Models C41, C461, C46)	-2
	-3
PS44 (Use With Cartridge Models C44, C464)	-4



TO ORDER:

To build a part number, select one **BOLD** component from each column in above table.

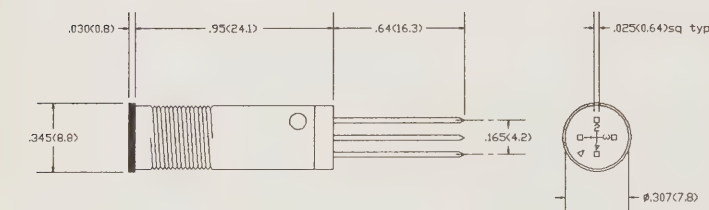
Example: PS40-2 (Socket for .312" Mounting Diameter (Model 40) Cartridge Panel Light with Two Terminals)

Adaptor Assemblies Part Number
.312 ADP (.312"(7.92) to .250"(6.4))
.375 ADP (.375"(9.53) to .250"(6.4))

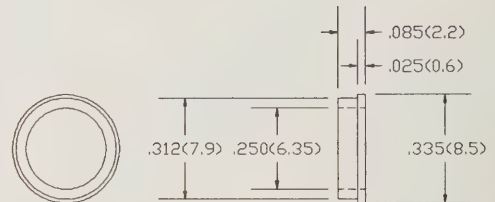
TO ORDER:

Select adaptor by ordering part number in **BOLD**.

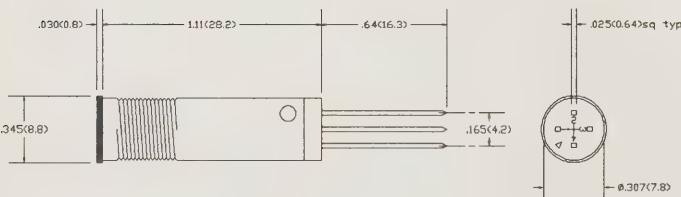
Example: .375 ADP (Selects Adapter for .250" Diameter to fit .375" Mounting Hole)



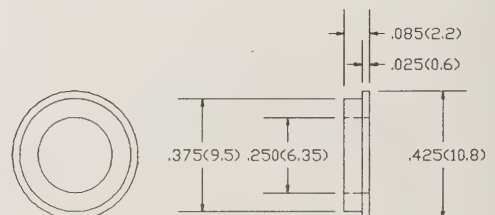
PS40



.312 Adaptor



PS44

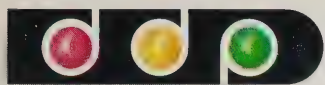


.375 Adaptor

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

.250" MOUNT PANEL LIGHTS

MOUNTING HARDWARE

Wiring Plugs	
Model	Number of Pins
SH40	-2
CSH40	-3
	-4

Note: May be used with any .025"(.64)sq terminals.

TO ORDER:

Select one **BOLD** component from each column in above table.

Example: CSH40-4 (Wiring Plug with 4 Pins)

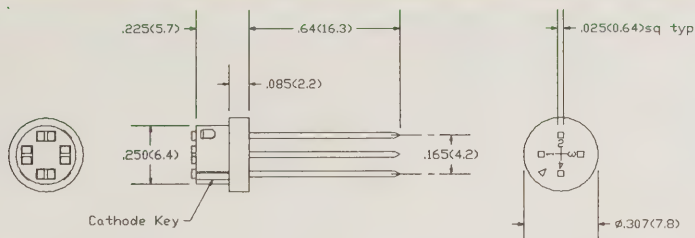
Crimp Terminals
Part Number
CS24 (Gold Plated Terminals)
CS24T (Tin Plated Terminals)

TO ORDER:

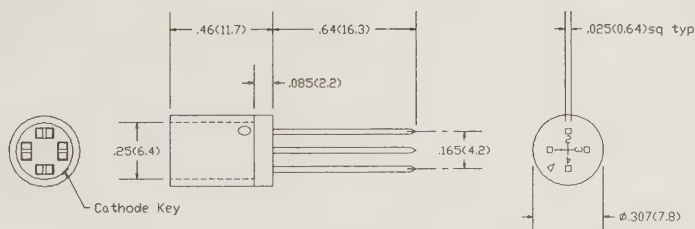
Select part number in **BOLD** from above table.

Crimp Tool available, order part number **HT95**.

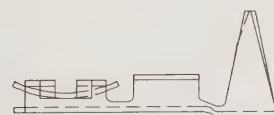
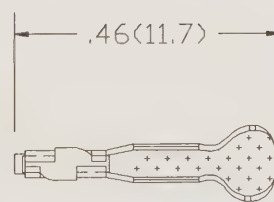
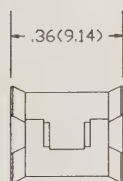
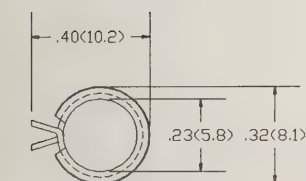
Example: CS24 (Gold Plated Crimp Terminal)



SH40



CSH40



TC4 & NW4, Mounting Hardware

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.

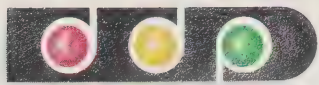
Mates with .025"(.63)sq terminals

Wire size: 22-28AWG

Insulation: .036"(.91) - .103(2.62) thick

Crimp tool available, Model HT95

CS24 & CS24T



Data Display Products

.290" MOUNT PANEL LIGHTS


STANDARD

Red, Amber, Yellow or Green

Various Lens Sizes and Projections

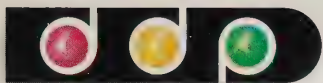
Mounting Hardware Provided

Cart-ridge	Model	Wires	Series X - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]				Lens		Bezel Color	
							Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	Diffu- sion		Color
C ^[2] Omit C for Non Cart- ridge Panel Light	905 ^[3]	W	-X ^{[4] [5]}	C (Non- Diffused)	R (RED, B, E, & U)	2 ^[6]	----	----	----	---	-C Clear	R Red	O Black
	91	Omit W for Std Ter- min- als	-B			5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3	-N Trans- lucent	A Amber	9 White
	94		-E	W (Water Clear, E & U Series only)	A (AMB, B, E & U)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5		Y Yel- low	
	96		-U			12	12V/18mA	5V/ 5mA	15V/23mA	5-15		G Green	
	961		Series Below Do Not Require Encapsulation or Color Code:			12H	12V/27mA	5V/ 8mA	15V/36mA	5-15		S Smoke	
	964					24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---		W ^[8] Water Clear	
			-X-2 ^{[4] [7]} (Dual Chip, Non-Diffused only)		Y (YEL, E & U)	24H	24V/17mA	15V/10mA	28V/20mA	---			
			-LRG ^[9] (Bi-Color, Red /Grn, Milky Diffused only)		G (GRN, B, E & U)	28	28V/11mA	15V/ 5.5mA	30V/12mA	---			
			-ERB ^[7] (Blinking Red, Diffused only)			28H	28V/16.5mA	15V/ 8mA	30V/18mA	---			
			-R2K (Hi-Intensity, Water Clear Red only)			48	48V/10mA	30V/ 6mA	50V/10.2mA	---			
			-R3K (Hi-Intensity, Water Clear Red only)			48H	48V/15mA	30V/ 9mA	50V/16mA	---			
						60	60V/ 7mA	40V/ 4.5mA	65V/ 8mA	---			
						60H	60V/12mA	40V/ 8mA	70V/14.5mA	---			
						110 ^[10]	110Vac/ 1.5RMS	----	130Vac/ 1.8RMS	130			
						110H ^[10]	110Vac/ 3RMS	----	130Vac/ 3.9RMS	130			
						220 ^[10]	220Vac/ 1RMS	----	250Vac/ 1.4RMS	250			





- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (91-EWG60HD-CWO). For 110dc to 220dc, insert DC after the Electrical Assembly (96-G110DC-CGO). 110H is available in Vac only.
- The Cartridge is for panel lights mounted in sockets, select std terminals only, do not select the W option.
- This model has no lens, the Lens Code in the part number describes the LED encapsulation. For a Non-Diffused LED, select C for Encapsulation and select CX (X represents color) for the Lens Code (905-BCG5H-CGO). For a Diffused LED, omit letter for Encapsulation and select NX for the Lens Code (905-BG5H-NGO). For a Water Clear LED, select W for Encapsulation and CW for the Lens Code (905-EWG5H-CWO).
- Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also Available in O (ORANGE).
- Omit Encapsulation Code.
- External resistor required.
- Contact factory for Electrical Assembly data.
- Select Lens Diffusion C only.
- Select CW Lens Code only.
- For 110V and 220V AC or DC, omit Series, and Encapsulation Code. Use Color Code only, (C94W-X110-CXO, where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN). In the Lens Code, X may be W (Water Clear) or S (Smoke) also.).



.290" MOUNT PANEL LIGHTS

STANDARD

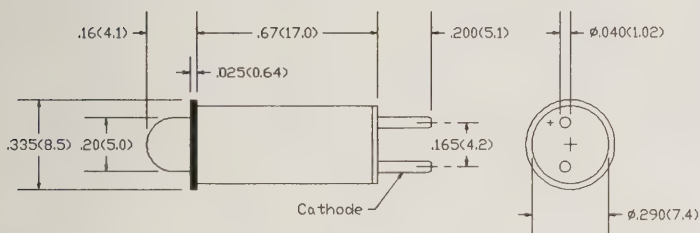
Data Display Products



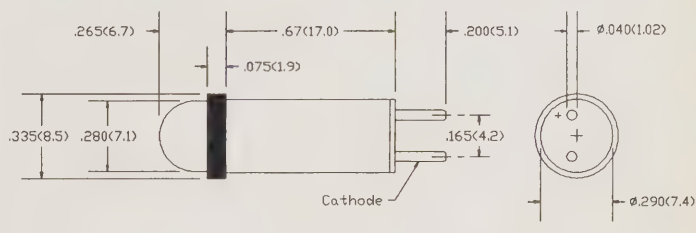
TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

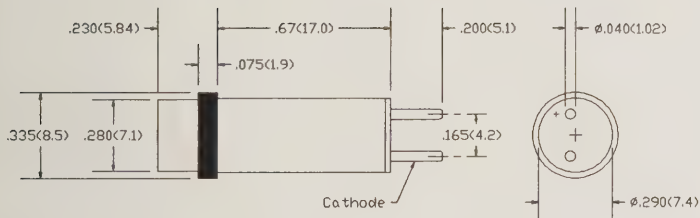
Example: 96W-ECY60H-CYO (Std Panel Light, Model 96 with 6" Wire Leads, E Series, **YELLOW**, 60 Vdc at 12mA, Clear Yellow Lens, Black Bezel)
C964-ALP2-CA9 (Cartridge Style Std Panel Light, Model 964 with Std Terminals, Low Power, **AMBER**, External resistor required, Clear Amber Lens, White Bezel)



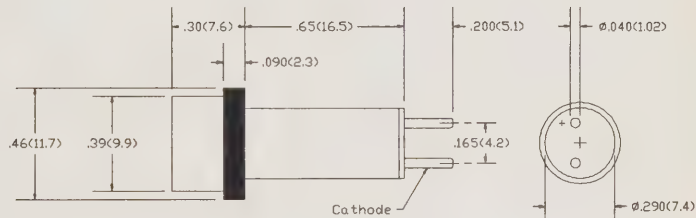
905



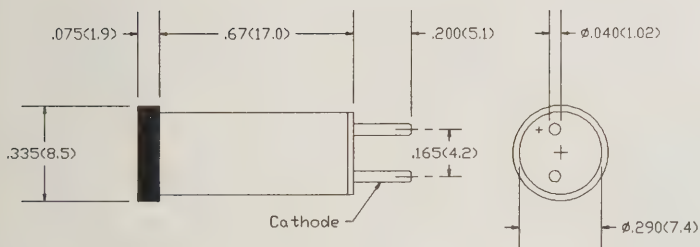
96



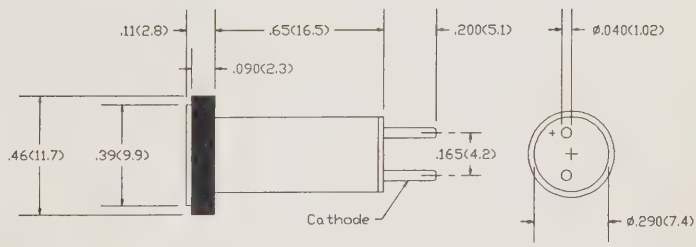
91



961



94



964

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

.290" MOUNT PANEL LIGHTS

MULTI-CHIP

Red, Orange, Amber, Green or Pure Green

Six Chip LEDs

Hardware Provided

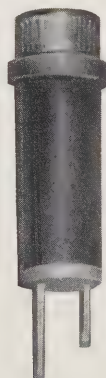
Cart-ridge	Model	Wires	Color			Electrical Assembly ^[1]				Multi-Chip	Lens		Bezel Color						
				Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current		Diffu-sion	Color							
C ^[3] Omit C for Non Cart-ridge Panel Light	91	W	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6	-C Clear	R Red	O Black						
	94	Omit W for Std Ter-min-als	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA		-N Trans-lucent	A Amber	Y Yellow	9 White					
	96					12	12V/37mA	10V/25mA	12.5V/40mA										
	961		-R (RED)	25/50	630	15	15V/20mA	14V/15mA	16V/25mA										
						24	24V/22mA	18V/11mA	25V/24mA										
	964		-O (ORANGE)	40/60	610	28	28V/18mA	21V/10mA	30V/20mA						G Green				
			-A (AMBER)	28/40	585	60	60V/16mA	40V/10mA	64V/18mA						S Smoke				
			-G (GREEN)	40/60	565	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS						W ^[4] Water Clear				
					-PG (Pure GREEN)	12/20	555												

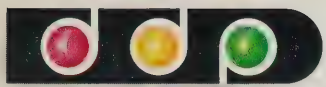
1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (91-R28AC-6-CRO). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (964-R110DC-6-CRO).
2. Luminous intensity measured at 20mA.
3. The Cartridge is for panel lights mounted in sockets, select std terminals only, do not select the W option.
4. Select Lens Diffusion C only.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **91W-05-6-CAO** (Std Multi-Chip Panel Light, Model 91 with 6" Wire Leads, ORANGE, 5 Vdc at 55mA, Clear Amber Lens, Black Bezel)
C961-PG28-CG9 (Cartridge Style Std Multi-Chip Panel Light, Model 961 with Std Terminals, Pure GREEN, 28 Vdc at 18mA, Clear Green Lens, White Bezel)

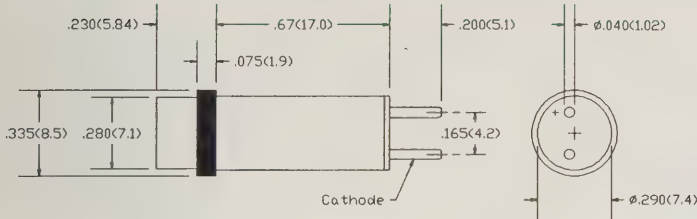




Data Display Products

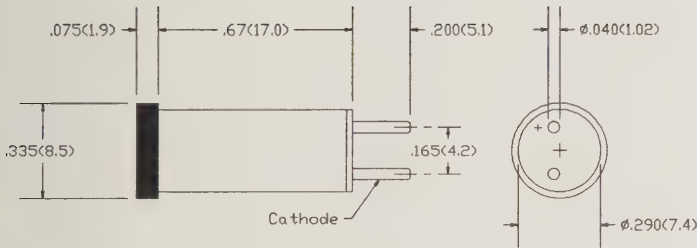
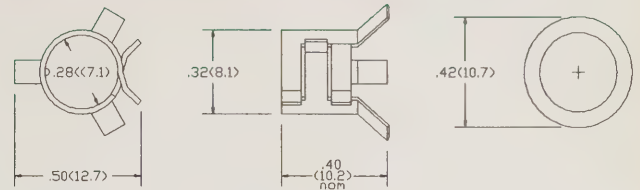
.290" MOUNT PANEL LIGHTS

MULTI-CHIP

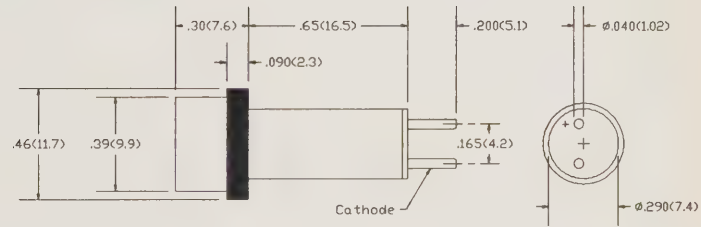


91

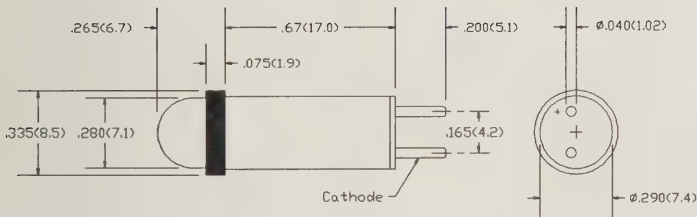
TC9 & NW9, Mounting Hardware



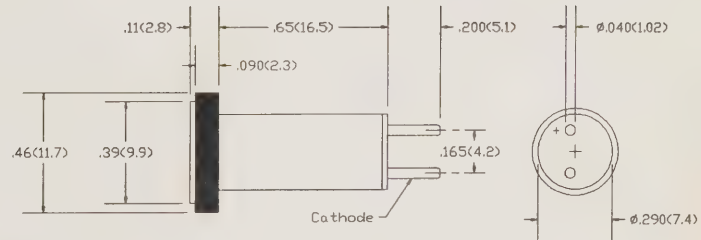
94



961



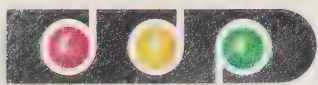
96



964

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches (mm)
Tolerances: .xxx" (x) $\pm .025$ " (.63), .xxx" (xx) $\pm .010$ " (.25)
Specifications are subject to change without notice.



Data Display Products

.290" MOUNT PANEL LIGHTS

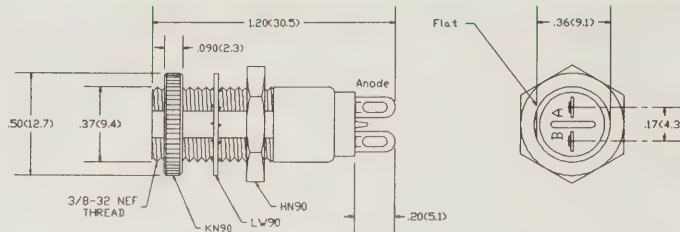
MOUNTING HARDWARE

Sockets for Cartridge Panel Lights

Wiring Plugs

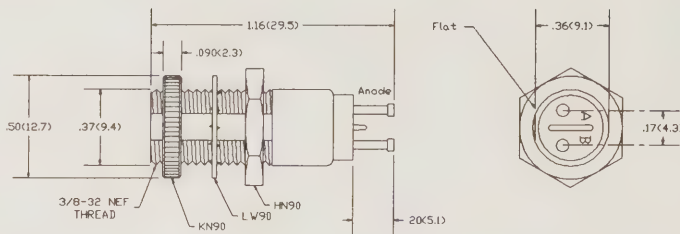
Lenses for Use with Sockets

Sockets (For Series 90)
Part Number
PS90 (Solder Terminals, Hardware Assembled)
PS90T (Turret Terminals, Hardware Assembled)



PS90

Retaining Collar (Use With Sockets PS90 and PS90T and Cartridge Models C905, C91 and C96)
RC90



PS90T

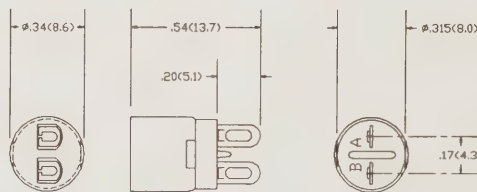
Wiring Plugs
SH90
CSH90

TO ORDER:

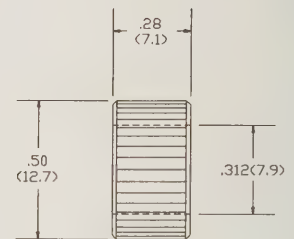
Select part numbers in **BOLD** from above tables.

Example: CSH90 (Wiring Plug)

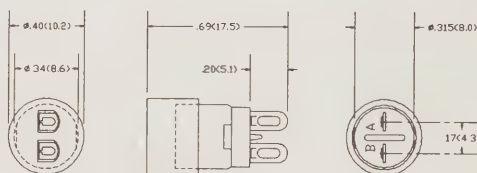
Lens (For Use With Socket and Model C905 Panel Light)		
Model	Encapsulation	Color
L92	-C (Clear)	R (RED)
		A (AMBER)
	-N (Translucent)	Y (YELLOW)
		G (GREEN)
		W (WHITE)
		-S (SMOKE) ^[1]



SH90

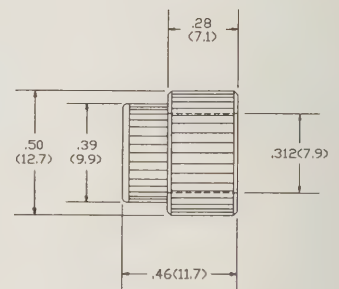


RC90



CSH90

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



L92

1. Omit Encapsulation (L92-S)

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: L92-NA (Lens for use with Model C905 panel light and socket, Translucent Amber)



Data Display Products

.290" MOUNT PANEL LIGHTS

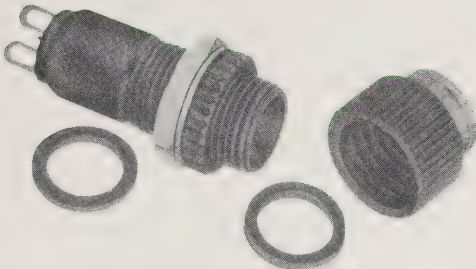
WATER TIGHT SOCKET

Translucent or Clear Red, Yellow, Amber, Green or White Lenses

Smoke Lens Available for High Ambient Conditions

For Splash-Down Environments

Model	Lens	Lens Color		Water Tight
		Diffusion	Color	
PS90	-192	-C (Clear)	R (Red)	-WT
PS90T		-N (Translucent)	A (Amber)	
			Y (Yellow)	
			G (Green)	
			W (White)	
			-S ^[1] (Smoke)	

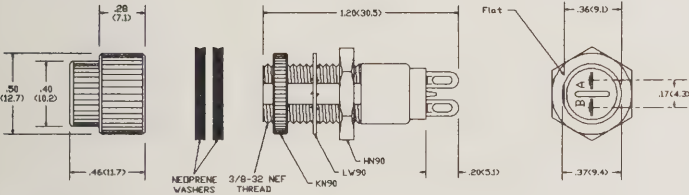


1. Omit Lens Diffusion Code (PS90T-L92-S-WT)

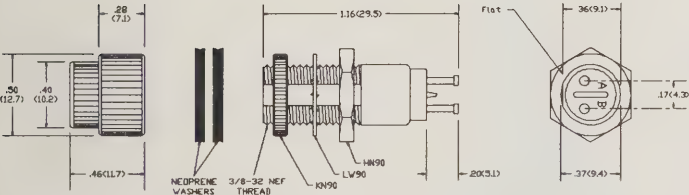
TO ORDER:

To build a part number, select one **BOLD** Component from each column in above table except where noted.

Example: PS90-L92-CY-WT (Socket with Solder Terminals, Clear Yellow Lens, Water Tight)



PS90, Water Tight



PS90T, Water Tight

All dimensions are in inches(mm)
Tolerances: .xx"(.x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



.312" MOUNT PANEL LIGHTS

Data Display Products

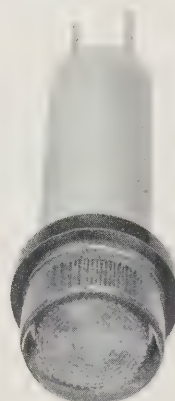
STANDARD

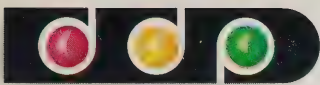
Red, Amber, Yellow or Green

Various Lens Sizes and Projections

Mounting Hardware Provided

Model	Wires	Series X - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]				Lens		Bezel Color
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	Diffu- sion	Color	
51	W	-X ^{[2] [3]}	C (Non-Diffused)	R (RED, B, E, & U)	2 ^[4]	----	----	----	-C Clear	R Red	O Black
53	Omit W for	-B			5	5V/17mA	3.6V/10mA	8V/32mA	-N Trans- lucent	A Amber	9 White
56	Std	-E	W (Water Clear, E & U Series only)	A (AMB, B, E & U)	5H	5V/27mA	3.6V/14mA	6V/40mA		Y Yel- low	
561	Ter- min- als	-U			12	12V/18mA	5V/ 5mA	15V/23mA		G Green	
564		Series Below Do Not Require Encapsulation or Color Code:			12H	12V/27mA	5V/ 8mA	15V/36mA		S Smoke	
		-XLP ^{[2] [5]} (Low Power, Diffused only)		Y (YEL, E & U)	24	24V/ 9mA	20V/ 7.5mA	30V/12mA		W ^[6] Water Clear	
		-X-2 ^{[2] [5]} (Dual Chip, Non-Diffused only)		G (GRN, B, E & U)	24H	24V/17mA	15V/10mA	28V/20mA			
		-LRG ^[7] (Bi-Color, Red /Grn, Milky Diffused only)			28	28V/11mA	15V/ 5.5mA	30V/12mA			
		-RAG ^[7] (Tri-Color, Red/Grn/Amb, Milky Diffused only, Common Cathode)			28H	28V/16.5mA	15V/ 8mA	30V/18mA			
		-GAR ^[7] (Tri-Color, Red/Grn/Amb, Milky Diffused only, Common Anode)			48	48V/10mA	30V/ 6mA	50V/10.2mA			
		-ERB ^[5] (Blinking Red, Diffused only)			48H	48V/15mA	30V/ 9mA	50V/16mA			
		-R2K (Hi-Intensity, Water Clear Red only)			60	60V/ 7mA	40V/ 4.5mA	65V/ 8mA			
		-R3K (Hi-Intensity, Water Clear Red only)			60H	60V/12mA	40V/ 8mA	70V/14.5mA			
					110 ^[8]	110Vac/ 1.5RMS	----	130Vac/ 1.8RMS			
					110H ^[8]	110Vac/ 3RMS	----	130Vac/ 3.9RMS			
					220 ^[8]	220Vac/ 1RMS	----	250Vac/ 1.4RMS			





.312" MOUNT PANEL LIGHTS

Data Display Products

STANDARD

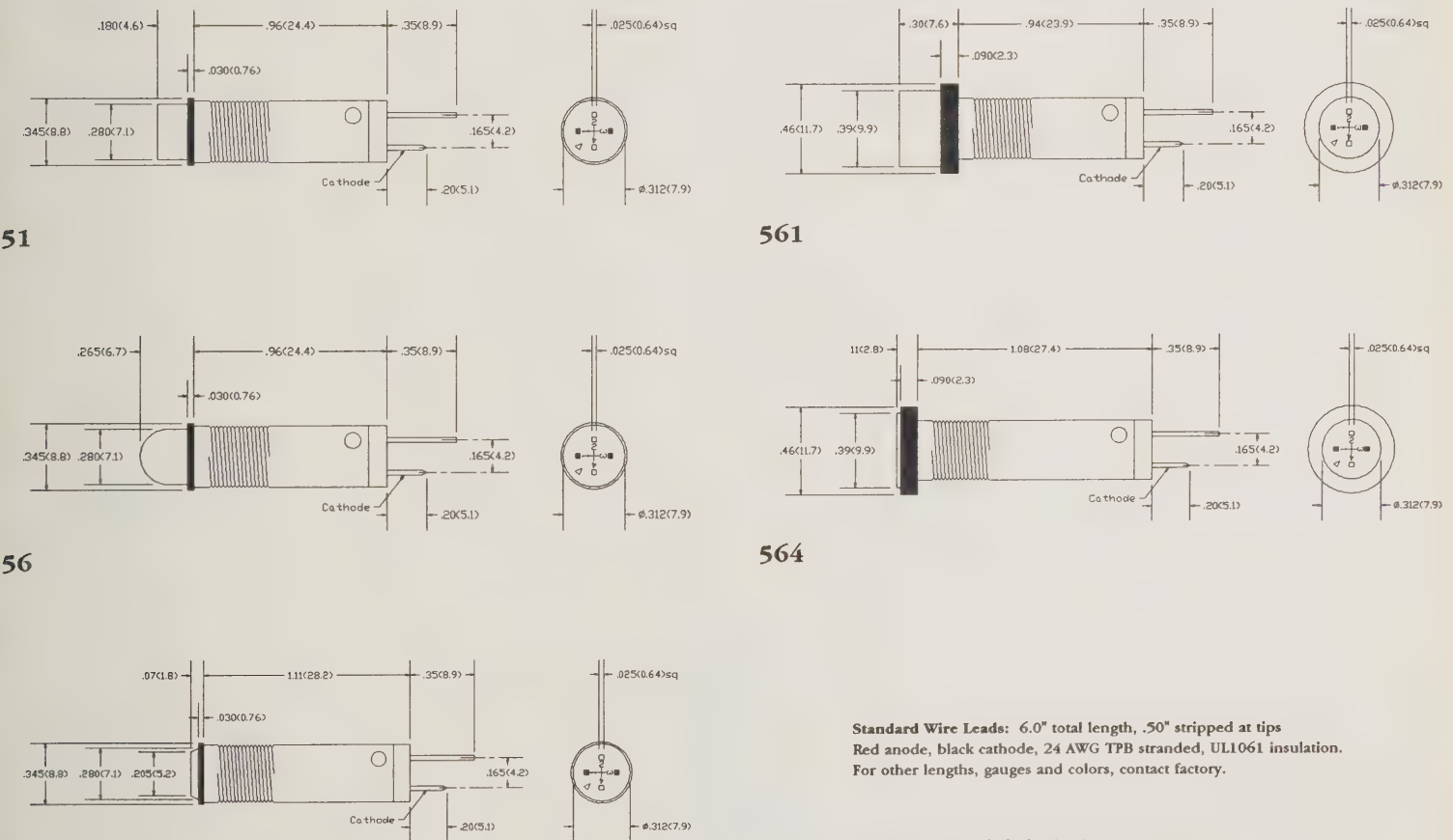


- 1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (56-ECR24HD-CR0). For 110dc and 220dc, insert DC after the Electrical Assembly (51-A110DC-CAO). 110H is available in Vac only.
- 2. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also Available in O (ORANGE).
- 3. Omit Encapsulation Code.
- 4. External resistor required.
- 5. Contact factory for Electrical Assembly data.
- 6. Select Lens Diffusion C only.
- 7. Select CW Lens Code only.
- 8. For 110V to 220V AC or DC, omit Series and Encapsulation Code. Use Color Code only, (561-X110-CXO, where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN). In the Lens Code X may be W (Water Clear) or S (Smoke) also.).

TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

Example: 564W-BCR5H-CRO (Std Panel Light, Model 564 with 6" Wire Leads, B Series, Non-Diffused RED, 5Vdc at 27mA, Clear Red Lens, Black Bezel)
51-EWG12-CW9 (Std Panel Light, Model 51 with Std Terminals, E Series, Water Clear GREEN, 12 Vdc at 18mA, Water Clear Lens and a White Bezel)



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

53



Data Display Products

.312" MOUNT PANEL LIGHTS

MULTI-CHIP

Red, Orange, Amber, Green or Pure Green

Six Chip LEDs

Mounting Hardware Provided

Model	Wires	Color				Electrical Assembly ^[1]			Multi-Chip	Lens		Bezel Color
			Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)			Design Voltage/Current	Min Voltage/Current		Max Voltage/Current	Diffu-sion	
51	W Omit W for Std Terminals	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6	-C Clear	R Red	O Black
53					6	6V/55mA	4.8V/20mA	6.4V/65mA				
56		-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA		-N Trans-lucent	A Amber	9 White
561					15	15V/20mA	14V/15mA	16V/25mA			Y Yel-low	
564		-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA				
		-O (ORANGE)	40/60	610	28	28V/18mA	21V/10mA	30V/20mA			G Green	
		-A (AMBER)	28/40	585	60	60V/16mA	40V/10mA	64V/18mA			S Smoke	
		-G (GREEN)	40/60	565	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS			W ^[3] Water Clear	
		-PG (Pure GREEN)	12/20	555								

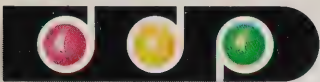
1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (53-R24AC-6-CRO). For 5Vac, contact factory. For 110Vdc, insert DC after the Electrical Assembly (561-A110DC-6-CAO).
2. Luminous intensity measured at 20mA.
3. Select Lens Diffusion C only.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **56W-R15-6-CRO** (Std Multi-Chip Panel Light, Model 56 with 6" Wire Leads, RED, 15Vdc at 20mA, Clear Red Lens, Black Bezel)
561-PG28-CG9 (Std Multi-Chip Panel Light, Model 561 with Std Terminals, Pure GREEN, 28Vdc at 18mA, Clear Green Lens, White Bezel)

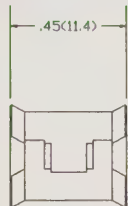
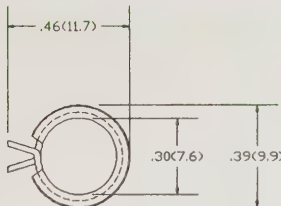
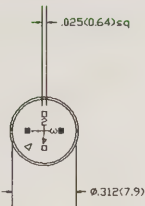
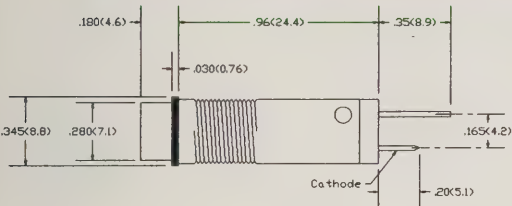




.312" MOUNT PANEL LIGHTS

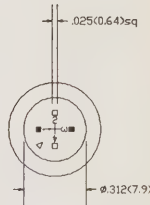
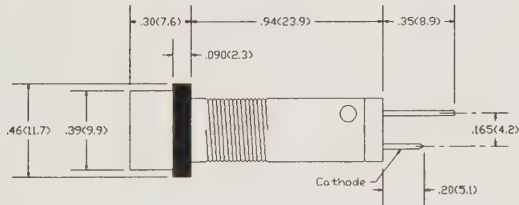
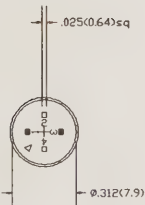
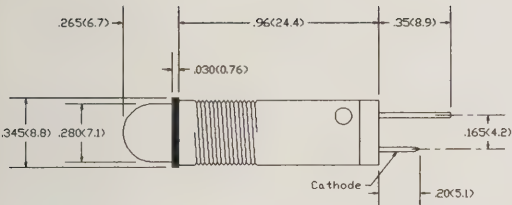
Data Display Products

MULTI-CHIP



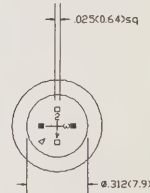
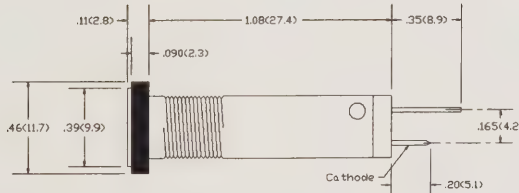
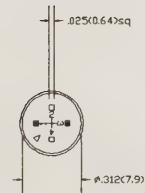
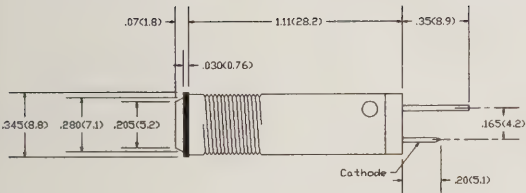
51

TC5 & NW5, Mounting Hardware



56

561



53

564

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025"(.63), .xxx(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

PANEL MOUNT REFLECTOR

T-1

Red, Amber, Amber/Yellow, Yellow or Green

Reflective Nickel Plated Body

Mounting Diameter .230" (5.8)

Model	Wires	Series B - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]				
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
PMR125	W Omit W for Std Ter- min- als	-B -E -P -U Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused only) -RG (Bi-Color, Red /Grn, Milky Diffused)	C (Non- Diffused) W (Water Clear, E & U Series only)	R (RED, All Series)	2 ^[2]	---	---	---	---
				A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3
				AY (AMBER/ YELLOW, P Series only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
				Y (YELLOW, E, P & U Series only)	12	12V/18mA	5V/ 5mA	15V/23mA	5-15
					12H	12V/27mA	5V/ 8mA	15V/36mA	5-15
				G (GREEN, All Series)	24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---
					24H	24V/17mA	15V/10mA	28V/20mA	---
					28	28V/11mA	15V/ 5.5mA	30V/12mA	---
					28H	28V/16.5mA	15V/ 8mA	30V/18mA	---

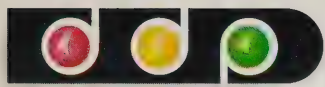
1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (PMR125W-EWG24HD).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN).
4. Contact factory for Low Power Electrical Assembly data.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PMR125-RG24H (T-1 Panel Mount Reflector, Std Terminals, Bi-Color, RED/GRN, 24Vdc at 17mA)

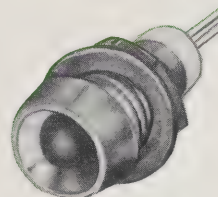
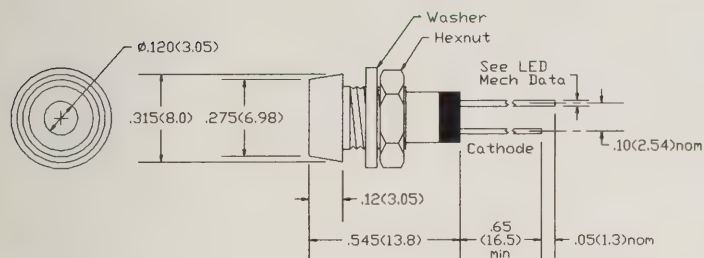
PMR125W-PCAY2 (T-1 Panel Mount Reflector, 6" Wires, P Series, Non-Diffused AMBER/YELLOW, External Resistor Required)



PANEL MOUNT REFLECTOR

T-1

Data Display Products



PMR125

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: $.xx^*(.x) \pm .025^*(.63)$, $.xxx^*(.xx) \pm .010^*(.25)$
Specifications are subject to change without notice.



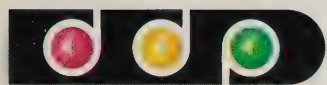
Red, Amber, Yellow or Green

Reflective Nickel Plated Surface

.312" Mounting Diameter

Model	Wires	Series M - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]				
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
PMR200	W Omit W for Std Ter- min- als	-M	C (Non- Diffused) W (Water Clear, E & U Series only)	R (RED, All Series) A (AMBER, All Series) Y (YELLOW, E & U Series only) G (GREEN, All Series)	2 ^[2]	----	----	----	—
		-B			5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3
		-E			5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5
		-U			12	12V/18mA	5V/ 5mA	15V/23mA	5-15
		Series Below Do Not Require Encapsulation or Color Code:			12H	12V/27mA	5V/ 8mA	15V/36mA	5-15
		-XLP ^{[3] [4]} (Low Power, Diffused only)			24	24V/ 9mA	20V/ 7.5mA	30V/12mA	—
		-X-2 ^{[3] [4]} (Dual Chip, Non-Diffused only)			24H	24V/17mA	15V/10mA	28V/20mA	—
		-LRG (Bi-Color, Red /Grn, Milky Diffused only)			28	28V/11mA	15V/ 5.5mA	30V/12mA	—
		-ERB ^[4] (Blinking Red, Diffused only)			28H	28V/16.5mA	15V/ 8mA	30V/18mA	—
		-R2K (Hi-Intensity, Water Clear Red only)			48	48V/10mA	30V/ 6mA	50V/10.2mA	—
		-R3K (Hi-Intensity, Water Clear Red only)			48H	48V/15mA	30V/ 9mA	50V/16mA	—
					60	60V/ 7mA	40V/ 4.5mA	65V/ 8mA	—
					60H	60V/12mA	40V/ 8mA	70V/14.5mA	—
					110 ^[5]	110Vac/ 1.5RMS	—	130Vac/ 1.8RMS	130
					110H ^[5]	110Vac/ 3RMS	—	130Vac/ 3.9RMS	130

1. For AC operation, insert D after the Electrical Assembly; D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (PMR200-BCG24HD). For 110dc, insert DC after the Electrical Assembly (PMR200-R110DC-C). 110H is available in Vac only.
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also Available in O (ORANGE).
4. Contact factory for Electrical Assembly data.
5. For 110V AC or DC, omit Series. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, and -W for Water Clear (PMR200-X110-W, PMR200-X110DC-C where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

PANEL MOUNT REFLECTOR

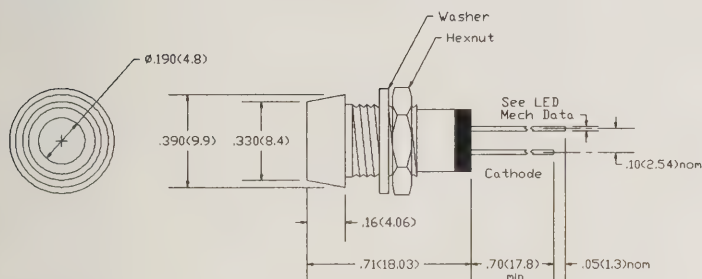
T-1 $\frac{3}{4}$



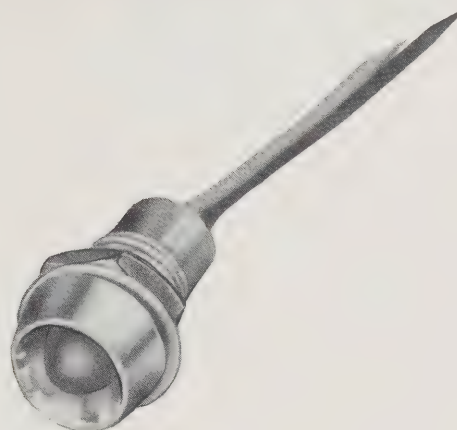
TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

Example: **PMR200W-ECY48H** (Panel Mount Reflector with 6" Wire Leads, E Series, Non-Diffused **YELLOW**, 48Vdc at 15mA)
PMR200-LRG2 (Panel Mount Reflector with Std Leads, Bi-Color, **RED/GRN**, External Resistor Required)

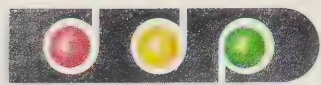


PMR200



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(.x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

WATER TIGHT PANEL MOUNT

T-1, REFLECTOR

Red, Amber, Amber/Yellow, Yellow or Green

For Splash-Down Environments

.230" Mounting Diameter

Model	Wires	Series B - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]					Water Tight		
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)			
PMR125	W Omit W for Std Ter- min- als	-B	C (Non- Diffused)	R (RED, All Series)	2 ^[2]	----	----	----	--	-WT		
		-E			5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3			
		-P	W (Water Clear, E & U Series only)	A (AMBER, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5			
		-U			12	12V/18mA	5V/ 5mA	15V/23mA	5-15			
		Series Below Do Not Require Encapsulation or Color Code:			12H	12V/27mA	5V/ 8mA	15V/36mA	5-15			
		-XLP ^{[3] [4]} (Low Power, Diffused only)			24	24V/ 9mA	20V/ 7.5mA	30V/12mA	--			
					24H	24V/17mA	15V/10mA	28V/20mA	--			
					28	28V/11mA	15V/ 5.5mA	30V/12mA	--			
					28H	28V/16.5mA	15V/ 8mA	30V/18mA	--			
		-RG (Bi-Color, Red /Grn, Milky Diffused)										
		Y (YELLOW E, P & U Series only										
		G (GREEN, All Series)										

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less.

2. External resistor required.

3. Replace X with required color R (RED), A (AMBER) or G (GREEN).

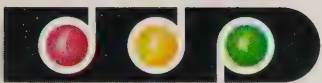
4. Contact factory for Low Power Electrical Assembly data.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: PMR125-RG24-WT (T-1 Panel Mount Reflector, Std Terminals, Bi-Color, RED/GRN, 24Vdc at 9mA, Water Tight)

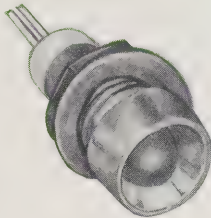
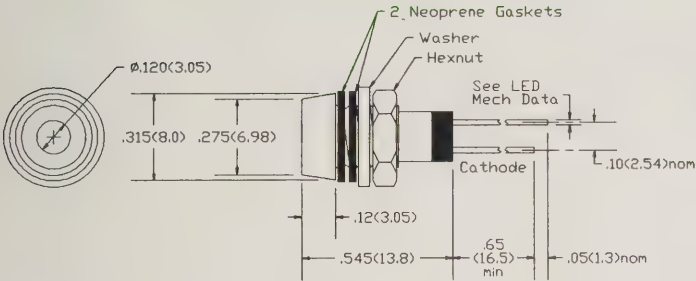
PMR125W-PCAY12H-WT (T-1 Panel Mount Reflector, 6" Wire Leads, P Series, Non-Diffused AMBER/YELLOW, 12Vdc at 27mA, Water Tight)



Data Display Products

WATER TIGHT PANEL MOUNT

T-1, REFLECTOR



PMR125, Water Tight

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xxx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

WATER TIGHT PANEL MOUNT

T-1 $\frac{3}{4}$, REFLECTOR

Red, Amber, Yellow or Green

For Splash-Down Environments

.312" Mounting Diameter

Model	Wires	Series M - U Listed by Increasing Luminous Intensity	Encap- sulation	Color	Electrical Assembly ^[1]					Water Tight
						Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	
PMR200	W Omit W for Std Ter- min- als	-M	C (Non- Diffused)	R (RED, All Series)	2 ^[2]	----	----	----	---	-WT
		-B			5	5V/17mA	3.6V/10mA	8V/32mA	3- 6.3	
		-E	W (Water Clear, E & U Series only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3- 5		
		-U		12	12V/18mA	5V/ 5mA	15V/23mA	5-15		
		Series Below Do Not Require Encapsulation or Color Code:	Y (YELLOW, E & U Series only)	12H	12V/27mA	5V/ 8mA	15V/36mA	5-15		
				24	24V/ 9mA	20V/ 7.5mA	30V/12mA	---		
				24H	24V/17mA	15V/10mA	28V/20mA	---		
				28	28V/11mA	15V/ 5.5mA	30V/12mA	---		
				28H	28V/16.5mA	15V/ 8mA	30V/18mA	---		
				48	48V/10mA	30V/ 6mA	50V/10.2mA	---		
		-XLP ^{[3] [4]} (Low Power, Diffused only)	G (GREEN, All Series)	48H	48V/15mA	30V/ 9mA	50V/16mA	---		
				60	60V/ 7mA	40V/ 4.5mA	65V/ 8mA	---		
				60H	60V/12mA	40V/ 8mA	70V/14.5mA	---		
		-X-2 ^{[3] [4]} (Dual Chip, Non-Diffused only)	110 ^[5]	110Vac/ 1.5RMS	---	130Vac/ 1.8RMS	130			
				110H ^[5]	110Vac/ 3RMS	---	130Vac/ 3.9RMS	130		
		-LRG (Bi-Color, Red /Grn, Milky Diffused only)	110H ^[5]	110Vac/ 3RMS	---	130Vac/ 3.9RMS	130			
		-ERB ^[4] (Blinking Red, Diffused only)	110H ^[5]	110Vac/ 3RMS	---	130Vac/ 3.9RMS	130			
		-R2K (Hi-Intensity, Water Clear Red only)	110H ^[5]	110Vac/ 3RMS	---	130Vac/ 3.9RMS	130			
-R3K (Hi-Intensity, Water Clear Red only)	110H ^[5]	110Vac/ 3RMS	---	130Vac/ 3.9RMS	130					

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (PMR200-ECR24HD-WT). For 110dc, insert DC after the Electrical Assembly (PMR200-A110DC-C-WT). 110H is available in Vac only.
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also Available in O (ORANGE).
4. Contact factory for Electrical Assembly data.
5. For 110V AC or DC, omit Series. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, and -W for Water Clear (PMR200-X110-W-WT, PMR200-X110DC-C-WT where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

WATER TIGHT PANEL MOUNT

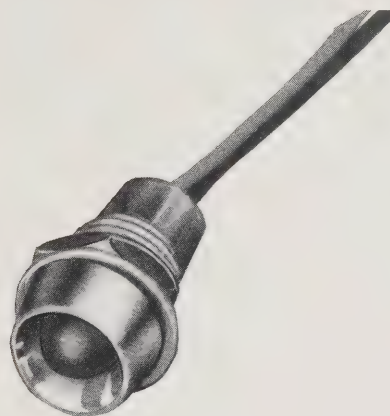
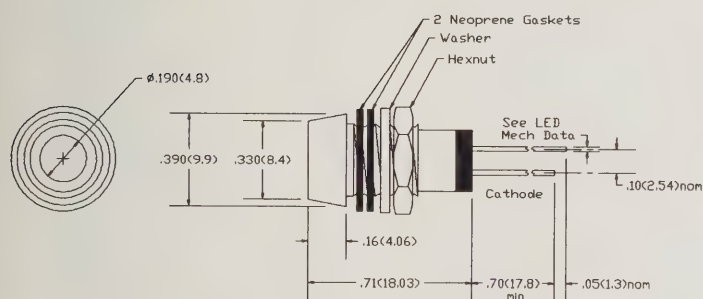
T-1 $\frac{3}{4}$, REFLECTOR



TO ORDER:

To build a part number, select one **BOLD** component from each column in the table except where noted.

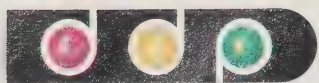
Example: **PMR200W-R3K5H-WT** (Panel Mount Reflector with 6" Wire Leads, Hi-Intensity RED, 5Vdc at 27mA, Water Tight)
PMR200-BCA2-WT (Panel Mount Reflector with Std Leads, B Series, Non-Diffused AMBER, External Resistor Required, Water Tight)



PMR200, Water Tight

Standard Wire Leads: 6.0" total length, .50" stripped at tips
 Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
 For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
 Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
 Specifications are subject to change without notice.



Data Display Products

BUBBLE LIGHT PANEL MOUNT

.290" MOUNT

Red, Amber or Green

20mm LED Diameter

Optional Wires Available

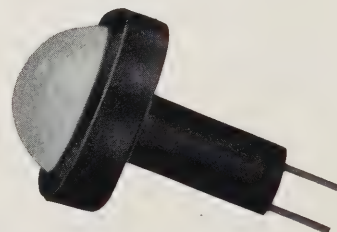
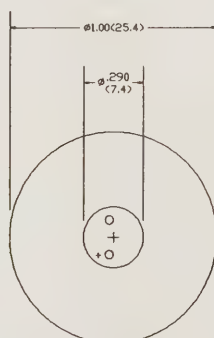
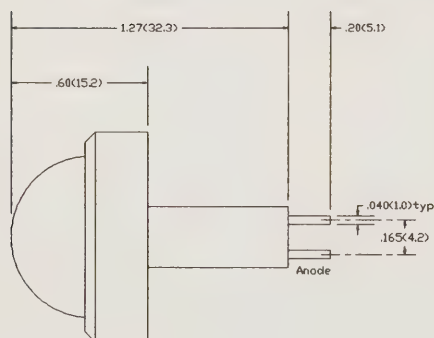
Cart- ridge	Model	Wires	Color		Electrical Assembly ^[1]				Lens ^[2]
			Peak Wave- length (nm)	Luminous Intensity Min/Typ ^[3] (mcd)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
C ^[4] Omit C for Non Cart- ridge Panel Light	800	W Omit W for Std Ter- min- als	-635 (RED)	25/42	-5V100	5V/120mA (Red), 5V/100mA (others)	3. 5V/55mA	5.6V/140 (Red) 5.6V/125 (others)	-R Red
			-585 (AMBER)	22/37	-6V55	6V/55mA	4.8V/20mA	6.5V/75mA	-A Amber
			-565 (GREEN)	25/42	-12V40	12V/37mA	10V/25mA	14V/50mA	-G Green
					-15V20	15V/20mA	14V/15mA	16V/30mA	-W White
					-24V20	24V/17mA	18V/8mA	26V/20mA	
					-28V20	28V/20mA	21V/10mA	32V/26mA	
					-60V12	60V/12mA	40V/7mA	70V/15mA	
					-110V6	110Vac/ 6.5RMS	50Vac/ 2.5RMS	130Vac/ 7.8RMS	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (C800W-635-12V40AC-R). For 5V100ac, contact factory. For 110dc insert DC after the Electrical Assembly (C800-565110V6DC-W).
2. The LED color must match the lens color, a white lens may be selected with any LED color.
3. Luminous intensity measured at 20mA.
4. The Cartridge is for panel lights mounted in sockets, select std terminals only, do not select the W option.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

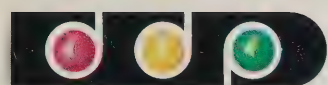
Example: C800-635-12V40-R (Cartridge Style Bubble Light Panel Mount, RED, 12Vdc at 37mA, Red Lens)



800

Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx(x) +/- .025"(.63), .xxx(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

METAL BODIED PANEL LIGHT

17/32" MOUNT

Red, Orange, Amber, Green or Pure Green

Six Chip LEDs

Black Anodized Aluminum Body

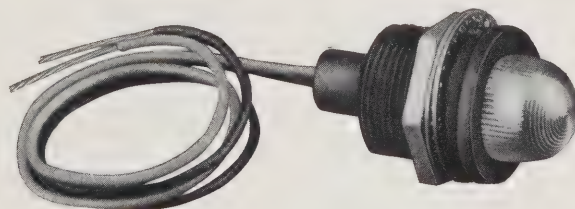
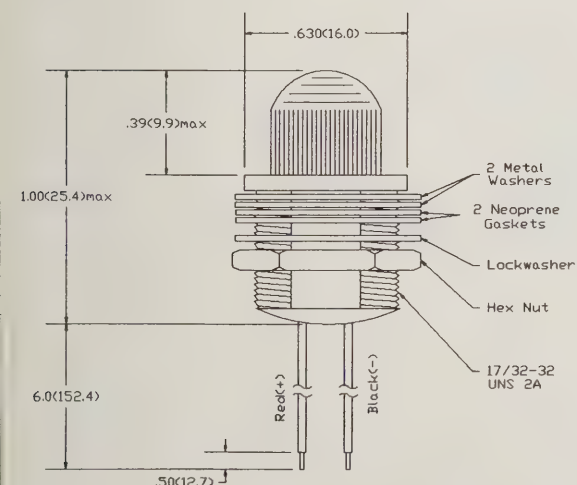
Model	Color			Electrical Assembly ^[1]				Multi-Chip	Lens		Bezel Color
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current		Diffu-sion	Color	
1732	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6	-C Clear	W Water Clear	O Black
				6	6V/55mA	4.8V/20mA	6.4V/65mA				
	-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA				
				15	15V/20mA	14V/15mA	16V/25mA				
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA				
				28	28V/18mA	21V/10mA	30V/20mA				
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA				
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS				
	-G (GREEN)	40/60	565								
-PG (Pure GREEN)	12/20	555									

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (1732-PG24AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110dc, insert DC after the Electrical Assembly (1732-O110DC-6-CWO).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 1732-ER60-6-CWO (Metal Bodied Panel Light With Multi-Chip LED, Ultra RED, 60Vdc at 16mA, Water Clear Lens, Black Bezel)



Standard Wire Leads: 6.0" total length, .50" stripped at tips
Red anode, black cathode, 24 AWG TPB stranded, UL1061 insulation.
For other lengths, gauges and colors, contact factory.

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

1732



Data Display Products

RFI SHIELDED PANEL LIGHT

.375" MOUNT

Red, Orange, Amber, Green or Pure Green

60 Mesh Stainless Steel Screen for RFI Shielding Up to 2GHz

Black Anodized Aluminum Body

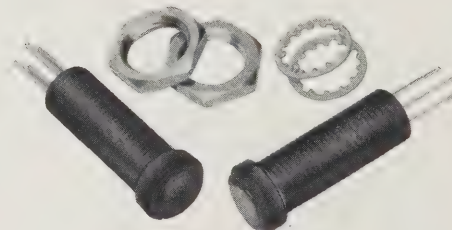
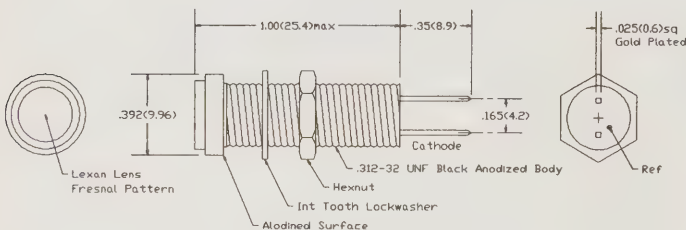
Model	Color			Electrical Assembly ⁽¹⁾			Multi-Chip	Lens	
		Luminous Intensity Min/Typ ⁽²⁾ (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Diffu-sion	Color
74	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-C Clear	R Red
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA		A Amber
				12	12V/37mA	10V/25mA	12.5V/40mA		Y Yellow
				15	15V/20mA	14V/15mA	16V/25mA		G Green
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA		W White
				28	28V/18mA	21V/10mA	30V/20mA		
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA		
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS		
	-G (GREEN)	40/60	565						
	-PG (Pure GREEN)	12/20	555						

- For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (74-R28AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (74-ER110DC-6-CR).
- Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 74-A28-6-CA (RFI Shielded Panel Light With Multi-Chip LED, AMBER, 28Vdc at 18mA, Clear Amber Lens)

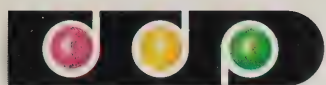


74

All dimensions are in inches(mm)

Tolerances: .xx'(x) +/- .025'(63), .xxx'(xx) +/- .010'(25)

Specifications are subject to change without notice.



SQUARE TRI-COLOR PANEL MOUNT

Data Display Products

.375" SQUARE MOUNTING HOLE

Any Combination of Red, Amber or Green

Three Rectangular LEDs

Diffused Tinted Encapsulations

Model	Series	Color	Series	Color	Series	Color
SQ375	-B	R (RED)	/B	R (RED)	/B	R (RED)
		A (AMBER)		A (AMBER)		A (AMBER)
		G (GREEN)		G (GREEN)		G (GREEN)

NOTE: For same three colors in the panel light, it is not necessary to separate each Series Color designation by a /. (SQ375-BA is a panel light with three AMBER LEDs)

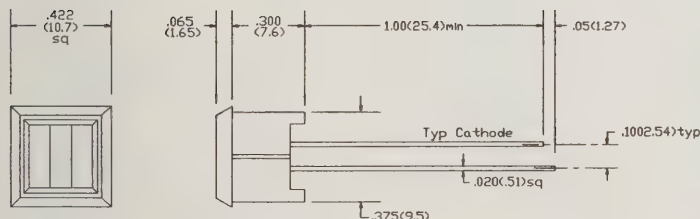
TO ORDER:

To build a part number, select one **BOLD** Component from each of the columns in above table except where noted.

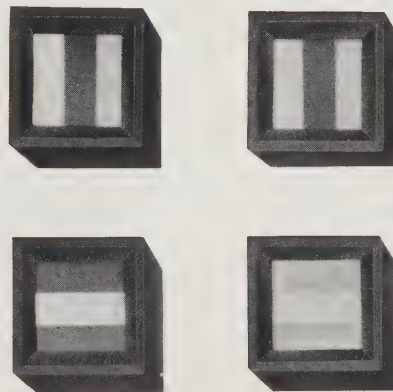
Example: SQ375-BR/BA/BG (A Tri-Color Panel Light With RED, AMBER and GREEN LEDs)

					Absolute Maximum Ratings at T _A =25°C				
Color	Luminous Intensity I _v (mcd) 25°C at 20 mA Min/Typ	Viewing Angle 2θ _{1/2}	Peak Wave-length λ (nm)	Fwd Voltage V _F (V) Min/Typ/Max at 20mA	Power Dissipation (mW)	Derating Factor (mW/°C) at T _A	Maximum Continuous Current (mA)	Peak Fwd Current 5% Duty Cycle (mA)	Operating & Storage Temp (°C)
RED	2/5	100	635	1.5/2.2/3.0	135	1.8	25	90	-55/+100
AMB	2/5	100	583	1.5/2.2/3.0	85	1.6 ^[1]	20	60	-55/+100
GRN	2/5	100	565	1.5/2.3/3.0	135	1.8	25	90	-55/+100

1. Derate from 50°C

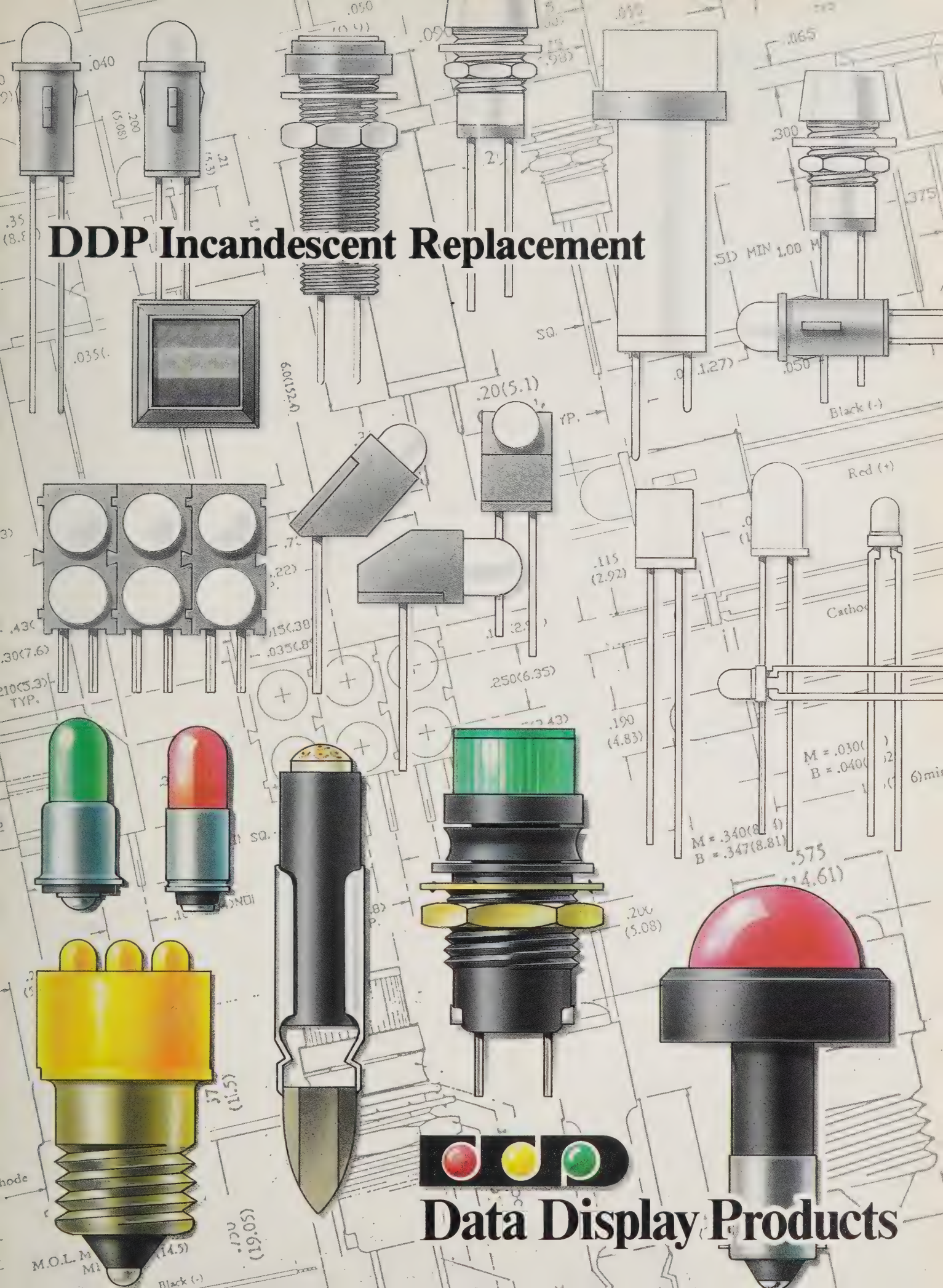


SQ375



All dimensions are in inches(mm)
Tolerances: .xx°(x) +/- .025°(.63), .xxx°(xx) +/- .010°(.25)
Specifications are subject to change without notice.

DDP Incandescent Replacement



Data Display Products



Data Display Products' lamp-based packages are 1 to 1 replacements for standard incandescent devices. A few of the advantages LEDs maintain over incandescent bulbs are their lower design current, resistance to vibration and shock, no cold filament inrush current, and a substantially longer life expectancy (100K hrs vs 5K hrs of bulb life).

How to Build a Part Number:

If you know the DDP part number you require, please turn to the alpha-numeric product listing on pages 1 and 2 ■ Section. Locate your part number by the Model and check the page(s) listed.

If you are crossing an incandescent lamp, turn to the cross reference list on pages 6 - 12 ■ Section, find the lamp number then turn to the page(s) listed.

If you do not have a lamp number or know the DDP part number, turn to the Table of Contents on pages 3 - 5 ■ Section. From the headings locate the size lamp you require and from the sub-heading choose the base style and LED type you require. Turn to the pages listed.

Under each heading in the tables there are several options. Select one option from each. Unless otherwise noted, you may mix and match the options from the different headings to suit your application requirements. Below is a description of the major headings.

Model

This describes the style of each lamp base. A mechanical drawing for each lamp is included near each table.

Series

Please refer to the Discrete LEDs ■ Section of the catalog where all DDP LEDs are listed along with their specifications.

Encapsulation

The LEDs are available with Diffused, Non-Diffused and Water Clear encapsulations.

Color

The table lists the LED colors available for the series listed. Some series may not be available in some colors.

Electrical Assembly

The available electrical assemblies for the models in the table are listed. Select your required assembly noting the design voltage/currents and their minimum and maximum values.





Data Display Products

ALPHA-NUMERIC LISTING

The following is an alpha-numeric listing of DDP's Incandescent Replacement LEDs, ■ Section.

Model	Description	Color Code	Pages
1SB	Incandescent Replacement	■	74-75, 78
1SBL	Incandescent Replacement	■	76-77, 79
2SB	Incandescent Replacement	■	80-81, 84
2SBL	Incandescent Replacement	■	82-83, 85
5SB	Incandescent Replacement	■	86-87, 90
5TSB	Incandescent Replacement	■	72-73
6TSB	Incandescent Replacement	■	95-96
46SB	Incandescent Replacement	■	70
55KSB	Incandescent Replacement	■	71
55SB	Incandescent Replacement	■	92-94
55SSB	Incandescent Replacement	■	88-89, 91
Bi-Polar	Incandescent Replacement	■	69
BP125	Incandescent Replacement	■	13
BP182/BP183	Incandescent Replacement	■	17
BP202	Incandescent Replacement	■	25-27
BP203	Incandescent Replacement	■	26-27
BPS-1	Incandescent Replacement	■	17, 25, 27
DCB500	Incandescent Replacement	■	67-68
MB180/MB180C	Incandescent Replacement	■	16
MB200	Incandescent Replacement	■	22-24
MB400/MB400C	Incandescent Replacement	■	41-43, 45-47
MBL400/MBL400C	Incandescent Replacement	■	41-43
MB401/MB401C	Incandescent Replacement	■	44
MB500/MB500C	Incandescent Replacement	■	62-63
MB800/MB800C	Incandescent Replacement	■	61



Data Display Products

ALPHA-NUMERIC LISTING

Model	Description	Color Code	Pages
MF125/MF125C	Incandescent Replacement	■	14-15
MF180/MF180C	Incandescent Replacement	■	18
MF200/MF200C	Incandescent Replacement	■	28-30
MF400/MF400C	Incandescent Replacement	■	48-53
MFL400/MFL400C	Incandescent Replacement	■	48-50
MF61	Incandescent Replacement	■	31
MFS1-B	Incandescent Replacement	■	31
MG180/MG180C	Incandescent Replacement	■	19
MG200/MG200C	Incandescent Replacement	■	32-34
MS180/MS180C	Incandescent Replacement	■	20
MS200/MS200C	Incandescent Replacement	■	35-37
MS400/MS400C	Incandescent Replacement	■	54-59
MSL400/MSL400C	Incandescent Replacement	■	54-56
MS500/MS500C	Incandescent Replacement	■	64-65
MS800/MS800C	Incandescent Replacement	■	60
MS900	Incandescent Replacement	■	66
WB180	Incandescent Replacement	■	21
WB200	Incandescent Replacement	■	38-40



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Low Profile, Bi-Pin Base	17
Low Profile, Flange Base	18
Low Profile, Groove Base	19
Low Profile, Screw Base	20
Low Profile, Wedge Base	21
Bayonet Base	22-23
Multi-Chip, Bayonet Base	24
Multi-Chip, Bi-Pin	25
Bi-Pin Base	26-27
Flange Base	28-29
Multi-Chip, Flange Base	30
Socket and Lens, Flange Base	31
Groove Base	32-33
Multi-Chip, Groove Base	34
Multi-Chip, Screw Base	35
Screw Base	36-37
Wedge Base	38-39
Multi-Chip, Wedge Base	40
T-3¼ Miniature Lamp	
Multi-Chip, Bayonet Base	41
Bayonet Base	42-43
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Four T-1 LED Cluster, Bayonet Base	45
Seven T-1 LED Cluster, Bayonet Base	46
Four T-1¾ Dual Chip Cluster, Bayonet Base	47
Flange Base	48-49
Multi-Chip, Flange Base	50
Four T-1 LED Cluster, Flange Base	51
Seven T-1 LED Cluster, Flange Base	52
Four T-1¾ Dual Chip Cluster, Flange Base	53
Screw Base	54-55
Multi-Chip, Screw Base	56
Four T-1 LED Cluster, Screw Base	57
Seven T-1 LED Cluster, Screw Base	58
Four T-1¾ Dual Chip Cluster, Screw Base	59
Bubble Light, Screw Base	60
Bubble Light, Bayonet Base	61
T-4¼ Candelabra Lamp	
Seven T-1 LED Cluster, Bayonet Base	62
Four T-1¾ Dual Chip Cluster, Bayonet Base	63
Seven T-1 LED Cluster, Screw Base	64
Four T-1¾ Dual Chip Cluster, Screw Base	65
T-4 1/4 Medium Lamp	
Tiered, Screw Base	66
T-4¼ Candelabra Lamp	
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Narrow Base NO. 5	96



LAMP CROSS REFERENCE

Data Display Products

Listed below is a cross reference for DDPs' Incandescent Replacement Lamps. Because there are several options available for any single industry standard lamp, please contact your local representative or the factory to discuss your application. Our qualified personnel will aid you in selecting the proper lamp for your requirements.

Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
3S6/5	120	Candelabra Screw	64,65
5ESB	5	Slide Number 5	86,87,90
6ESB	6	Slide Number 5	86,87,90
6S6	115	Candelabra Screw	64,65
12ESB	12	Slide Number 5	86,87,90
12MB	12	Miniature Bayonet	41-47,61
12PSB	12	Slide Number 5	86,87,90
12RB	12	Miniature Bayonet	41-47,61
12RC	12	Candelabra Screw	64,65
17	28	Sub-Miniature Wedge	21,38-40
18	14	Sub-Miniature Wedge	21,38-40
24CSB	24	Slide Number 5	86,87,90
24ESB	24	Slide Number 5	86,87,90
24MB	24	Miniature Bayonet	41-47,61
24PSB	24	Slide Number 5	86,87,90
24RB	24	Miniature Bayonet	41-47,61
24RC	24	Candelabra Screw	64,65
24ESB	28	Slide Number 5	86,87,90
28MB	28	Miniature Bayonet	41-47,61
28PSB	28	Slide Number 5	86,87,90
28RB	28	Miniature Bayonet	41-47,61
28RC	28	Candelabra Screw	64,65
37	14	Sub-Miniature Wedge	21,38-40
44	6.3	Miniature Bayonet	41-46,61
46	6.3	Miniature Screw	54-58,60



LAMP CROSS REFERENCE

Data Display Products

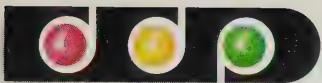
Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
47	6.3	Miniature Bayonet	41-46,61
48ESB	48	Slide Number 5	86,87,90
48MB	48	Miniature Bayonet	41-47,61
48PSB	48	Slide Number 5	86,87,90
48RB	48	Miniature Bayonet	41-47,61
48RC	48	Candelabra Screw	64,65
52	14.4	Miniature Screw	54-60
53	14.4	Miniature Bayonet	41-47,61
56	5	Sub-Miniature Wedge	21,38-40
57	14	Miniature Bayonet	41-47,61
60MB	60	Miniature Bayonet	41-47,61
60PSB	60	Slide Number 5	86,87,90
60RB	60	Miniature Bayonet	41-47,61
60RC	60	Candelabra Screw	64,65
70	14	Sub-Miniature Wedge	21,38-40
73	14	Sub-Miniature Wedge	21,38-40
74	14	Sub-Miniature Wedge	21,38-40
79	6	Sub-Miniature Wedge	21,38-40
84	6.3	Sub-Miniature Wedge	21,38-40
85	28	Sub-Miniature Wedge	21,38-40
86	6.3	Sub-Miniature Wedge	21,38-40
120MB	120	Miniature Bayonet	41-47,61
120PSB	120	Slide Number 5	86,87,90
120RB	120	Miniature Bayonet	41-47,61
120RC	120	Candelabra Screw	64,65
216	14.4	Miniature Bayonet	41-47,61



LAMP CROSS REFERENCE

Data Display Products

Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
239	6.3	Miniature Bayonet	41-46,61
240	6.3	Miniature Bayonet	41-46,61
256	14	Miniature Bayonet	41-47,61
302	28	D. C. Bayonet	67-68
304	28	D. C. Bayonet	67-68
306	28	D. C. Bayonet	67-68
308	28	D. C. Bayonet	67-68
313	28	Miniature Bayonet	41-47,61
316	6	Miniature Bayonet	41-46,61
327	28	Midget Flanged	18,28-30
328	6	Midget Flanged	18,28-30
330	14	Midget Flanged	18,28-30
334	28	Midget Grooved	19,32-34
335	28	Midget Screw	20,35-37
336	14	Midget Grooved	19,32-34
337	6	Midget Grooved	19,32-34
342	6	Midget Screw	20,35-37
345	6	Midget Flanged	18,28-30
349	6.3	Midget Flanged	18,28-30
350	6.3	Midget Flanged	18,28-30
356	28	Miniature Bayonet	41-47,61
363	14	Miniature Bayonet	41-47,61
369	28	Midget Screw	20,35-37
370	18	Midget Flanged	18,28-30
373	14	Midget Screw	20,35-37
376	28	Midget Flanged	18,28-30



LAMP CROSS REFERENCE

Data Display Products

Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
377	6.3	Midget Flanged	18,28-30
378	6.3	Midget Screw	20,35-37
379	6.3	Midget Grooved	19,32-34
380	6.3	Midget Flanged	18,28-30
381	6.3	Midget Flanged	18,28-30
382	14	Midget Flanged	18,28-30
383	14	Midget Screw	20,35-37
385	28	Midget Flanged	18,28-30
386	14	Midget Grooved	19,32-34
387	28	Midget Flanged	18,28-30
388	28	Midget Grooved	19,32-34
394	12	Midget Flanged	18,28-30
398	6.3	Midget Grooved	19,32-34
399	28	Midget Screw	20,35-37
459	22	Midget Flanged	18,28-30
682AS15	5	Sub-Midget Flanged	14-15
682AS25	5	Sub-Midget Flanged	14-15
685AS15	5	Sub-Midget Flanged	14-15
685AS25	5	Sub-Midget Flanged	14-15
714AS15	5	Sub-Midget Flanged	14-15
714AS25	5	Sub-Midget Flanged	14-15
718AS15	5	Sub-Midget Flanged	14-15
718AS25	5	Sub-Midget Flanged	14-15
755	6.3	Miniature Bayonet	41-46,61
756	14	Miniature Bayonet	41-47,61
757	28	Minature Bayonet	41-47,61



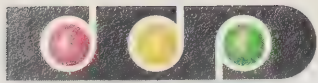
LAMP CROSS REFERENCE

Data Display Products

Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
1204	28	D. C. Bayonet	67-68
1252	28	D. C. Bayonet	67-68
1302	6.3	Miniature Bayonet	41-46,61
1437	24	Miniature Bayonet	41-47,61
1445	14.4	Miniature Bayonet	41-47,61
1446	12	Miniature Screw	54-60
1449	14	Miniature Screw	54-60
1483	6	Miniature Screw	54-58,60
1487	14	Miniature Screw	54-60
1488	14	Miniature Bayonet	41-47,61
1495	28	Miniature Bayonet	41-47,61
1638	28	D. C. Bayonet	67-68
1692	28	D. C. Bayonet	67-68
1768	6	Midget Screw	20,35-37
1775	6.3	Midget Screw	20,35-37
1810	6.3	Miniature Bayonet	41-46,61
1813	14.4	Miniature Bayonet	41-47,61
1815	14	Miniature Bayonet	41-47,61
1818	24	Miniature Bayonet	41-47,61
1819	28	Miniature Bayonet	41-47,61
1820	28	Miniature Bayonet	41-47,61
1821	28	Miniature Screw	54-60
1829	28	Miniature Bayonet	41-47,61
1835	55	Miniature Bayonet	41-47,61
1847	6.3	Miniature Bayonet	41-46,61
1850	5	Miniature Bayonet	41-46,61



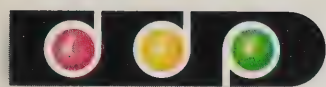
Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
1855	6.3	Miniature Bayonet	41-46,61
1864	28	Miniature Bayonet	41-47,61
1866	6.3	Miniature Bayonet	41-46,61
1873	28	Miniature Bayonet	41-47,61
1889	14	Miniature Bayonet	41-47,61
1891	14	Miniature Bayonet	41-47,61
1892	14.4	Miniature Bayonet	41-47,61
1893	14	Miniature Bayonet	41-47,61
1895	14	Miniature Bayonet	41-47,61
2314	28	Bi-Pin	17,25-27
2323	28	Bi-Pin	17,25-27
2324	28	Bi-Pin	17,25-27
2325	28	Bi-Pin	17,25-27
2335	14	Bi-Pin	17,25-27
2337	6.3	Bi-Pin	17,25-27
2341	24	Bi-Pin	17,25-27
2342	28	Bi-Pin	17,25-27
3149	5	Bi-Pin	17,25-27
7001	24	Bi-Pin	17,25-27
7003	24	Bi-Pin	17,25-27
7327	28	Bi-Pin	17,25-27
7328	6	Bi-Pin	17,25-27
7330	14	Bi-Pin	17,25-27
7332	5	Midget Flanged	18,28-30
7333	5	Midget Flanged	18,28-30
7335	5	Midget Flanged	18,28-30



LAMP CROSS REFERENCE

Data Display Products

Lamp Number	Design Voltage	Base Description	Catalog Page Numbers
7341	28	Midget Flanged	18,28-30
7349	6.3	Bi-Pin	17,25-27
7354	12	Midget Grooved	19,32-34
7355	28	Midget Grooved	19,32-34
7361	5	Bi-Pin	17,25-27
7371	12	Bi-Pin	17,25-27
7373	14	Bi-Pin	17,25-27
7376	28	Bi-Pin	17,25-27
7377	6.3	Bi-Pin	17,25-27
7380	6.3	Bi-Pin	17,25-27
7381	6.3	Bi-Pin	17,25-27
7382	14	Bi-Pin	17,25-27
7387	28	Bi-Pin	17,25-27
7680	5	Bi-Pin (T-1)	13
7683AS15	5	Bi-Pin (T-1)	13
7714	5	Bi-Pin (T-1)	13
7715	5	Bi-Pin (T-1)	13
7876	28	Bi-Pin	17,25-27
7945	6	Bi-Pin	17,25-27
8362	14	Midget Screw	20,35-37
8369	28	Midget Screw	20,35-37
8384	28	Midget Screw	20,35-37
8918	14	Midget Flanged	18,28-30



Data Display Products

SUB-MIDGET LAMP

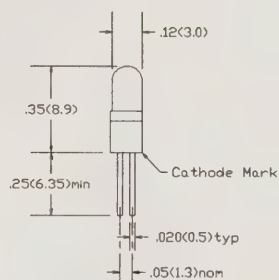
BI-PIN BASE

Red, Amber, Amber/Yellow, Yellow or Green

Low Power and Bi-Color LEDs

LEDs With 5Vdc or 12Vdc Voltages Available

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
BP125	-B -E -P (Non-Diffused Only) -U Series Below Do Not Require Encapsulation or Color Code: -XLP ^[2] (Low Power, Diffused Only) -RG (Bi-Color, RED/GRN, Milky Diffused) -BX5V ^{[2] [3]} (Integrated Resistor for 5Vdc, Diffused Only) -BX12V ^{[2] [3]} (Integrated Resistor for 12Vdc, Diffused Only)	C (Non-Diffused) For Diffused, Omit Letter W (Water Clear, E and U Series Only)	R (RED, All Series) A (AMBER, All Series) AY (AMBER/YELLOW, P Series Only) Y (YELLOW, E, U & P Series Only) G (GREEN, All Series)	2 ^[1]



BP125

All dimensions are in inches(mm)
 Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
 Specifications are subject to change without notice.

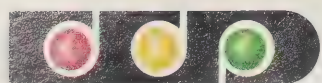


1. External resistor required.
2. Replace X with required color R (RED), A (AMBER) or G (GREEN).
3. Does not require Electrical Assembly 2 after Series Code (BP125-BG5V, BP125-BA12V).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **BP125-UWA2** (T-1 Sub-Midget Bi-Pin, Water Clear AMBER, U Series, External resistor required.)
BP125-GLP2 (T-1 Sub-Midget Bi-Pin, Low Power GREEN, External resistor required.)



Data Display Products

SUB-MIDGET LAMP

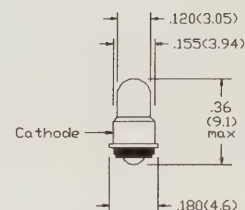
FLANGE BASE

Red, Amber, Amber/Yellow, Yellow or Green

Nickel Plated Base

Center Anode or Center Cathode Available

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly
MF125 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[1]
MF125C (Center Cathode)	-E	For Diffused, Omit Letter	A (AMBER, All Series)	
	-P (Non-Diffused Only)	W (Water Clear, E and U Series Only)	AY (AMBER/YELLOW, P Series Only)	
	-U		Y (YELLOW, E, U & P Series Only)	
	Series Below Do Not Require Encapsulation or Color Code:		G (GREEN, All Series)	
	-XLP ^[2] (Low Power, Diffused Only)			
	-RG (Bi-Color, RED/ GRN, Milky Diffused)			
	-BX5V ^{[2] [3]} (Integrated Resistor for 5Vdc, Diffused Only)			
	-BX12V ^{[2] [3]} (Integrated Resistor for 12Vdc, Diffused Only)			



Available With Center Cathode

MF125, MF125C

All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025"(.63), .xxx(.xx) +/- .010"(.25)
Specifications are subject to change without notice.



1. External resistor required.
2. Replace X with required color R (RED), A (AMBER) or G (GREEN).
3. Omit Electrical Assembly 2 after Series Code (MF125-BG5V, MF125-BR12V).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **MF125-PCAY2** (Sub-Midget Flange, P Series, Non-Diffused AMBER/YELLOW, External resistor required.)
MF125-RG2 (Sub-Midget Flange, Bi-Color, RED/GRN, External resistor required.)



Data Display Products

SUB-MIDGET LAMP

MULTI-CHIP, FLANGE BASE

Red, Orange, Amber, Green or Pure Green

2 Chip LEDs

5Vdc Operation

Model	Color			5	Electrical Assembly			Multi-Chip
		Luminous Intensity Min/Typ (mcd) ^[1]	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MF125 (Center Anode)	-BR (Bright RED)	12/25	660		5V/40mA	3.5V/20mA	5.5V/50mA	-2
MF125C (Center Cathode)	-R (RED)	3/ 6	635					
	-O (ORANGE)	5/11	610					
	-A (AMBER)	5/11	585					
	-G (GREEN)	6/13	565					
	-PG (Pure GREEN)	2/ 4	555					

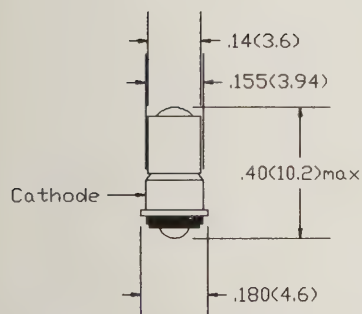


1. Luminous intensity measured at 30mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **MF125-PG5-2** (Sub-Midget Flange Base, Pure GREEN, 2 Chip Multi-Chip, 5Vdc at 40mA)



Available With Center Cathode

All dimensions are in inches(mm)
Tolerances: .xx^o(.x) +/- .025^o(.63), .xxx^o(.xx) +/- .010^o(.25)
Specifications are subject to change without notice.

MF125, MF125C, Multi-Chip



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

LOW PROFILE, BAYONET BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

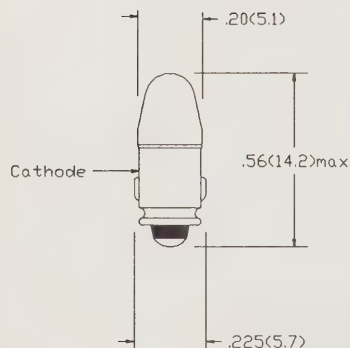
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MB180 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
Y (YELLOW, E Series Only)			5H	5V/27mA	3.6V/14mA	6V/40mA	3-5	
			12	12V/18mA	5V/5mA	15V/23mA	5-15	
			12H	12V/27mA	5V/8mA	15V/36mA	5-15	
			G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	---
24H				24V/17mA	15V/10mA	28V/20mA	---	
28				28V/11mA	15V/5.5mA	30V/12mA	---	
28H				28V/16.5mA	15V/8mA	30V/18mA		
MB180C (Center Cathode)								

- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MB180-BCA28HD).
- External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB180-BCR24 (T-1³/₄ Low Profile, Sub-Miniature Bayonet Base, B Series, Non-Diffused RED, 24Vdc at 9mA)
MB180-ER5H (T-1³/₄ Low Profile, Sub-Miniature Bayonet Base, E Series, Diffused RED, 5Vdc at 27mA)



Available With Center Cathode



All dimensions are in inches(mm)

Tolerances: .xx*(x) +/-.025*(.63), .xxx*(xx) +/-.010*(.25)

Specifications are subject to change without notice.

MB180, MB180C



Data Display Products

T-1³/₄ SUBMINIATURE LAMP

LOW PROFILE, BI-PIN BASE

Red, Amber, Yellow or Green

Optional Socket Available

2 to 28 Volts AC or DC

Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
BP182 ^[2]	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[3]	---	---	---	---
BP183	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
			Y (YELLOW, E Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
			G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---



1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (BP182-BCR24HD).
2. Mates with BPS-1 socket below.
3. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

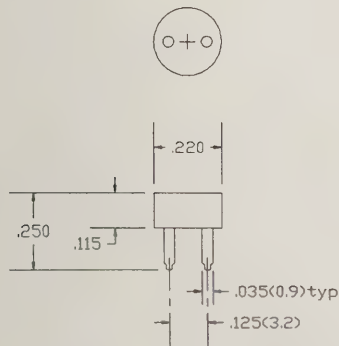
Example: BP182-ECY12H (T-1³/₄ Low Profile, Sub-Miniature Bi-Pin Base, E Series, Non-Diffused YELLOW, 12Vdc at 27mA)
BP183-BR5H (T-1³/₄ Low Profile, Sub-Miniature Bi-Pin Base, B Series, Diffused RED, 5Vdc at 27mA)

Socket (For Use with BP182)
Part Number
BPS-1

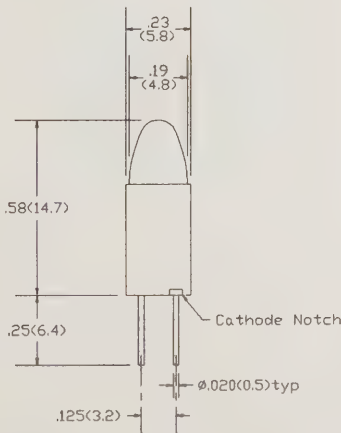
All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

TO ORDER:

Select part number in **BOLD** from above table.

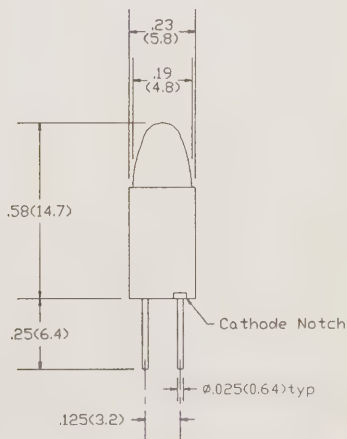


BPS-1 Socket Mates With BP182/202.



BP182 Mates With BPS-1 Socket.

BP182



BP183

BPS-1

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

LOW PROFILE, FLANGE BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

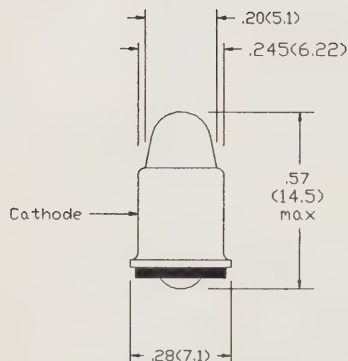
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MF180 (Center Anode) MF180C (Center Cathode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	—	—	—	—
	-E	For Diffused, Omit Letter	A (AMBER, All Series) Y (YELLOW, E Series Only) G (GREEN, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
				12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	—
				24H	24V/17mA	15V/10mA	28V/20mA	—
				28	28V/11mA	15V/5.5mA	30V/12mA	—
				28H	28V/16.5mA	15V/8mA	30V/18mA	

- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MF180-BG24HD).
- External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF180-BCA24H (T-1³/₄ Low Profile, Sub-Miniature Flange Base, B Series, Non-Diffused AMBER, 24Vdc at 17mA)
MF180-ER12 (T-1³/₄ Low Profile, Sub-Miniature Flange Base, E Series, Diffused RED, 12Vdc at 18mA)

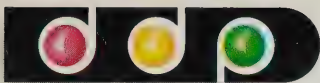


Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

MF180, MF180C



Data Display Products

T-1¾ SUB-MINIATURE LAMP

LOW PROFILE, GROOVE BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

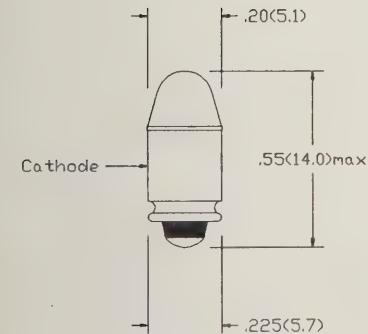
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MG180 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
MG180C (Center Cathode)			Y (YELLOW, E Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
				12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
			G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MG180-ECY28HD).
2. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component fom each column in above table except where noted.

Example: MG180-BCA24H (T-1¾ Low Profile, Sub-Miniature Groove Base, B Series, Non-Diffused AMBER, 24Vdc at 17mA)
MG180-EG12H (T-1¾ Low Profile, Sub-Miniature Groove Base, E Series, Diffused GREEN, 12Vdc at 27mA)



Available With Center Cathode

MG180, MG180C



All dimensions are in inches(mm)
Tolerances: xx*(x) +/- .025*(.63), xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

LOW PROFILE, SCREW BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

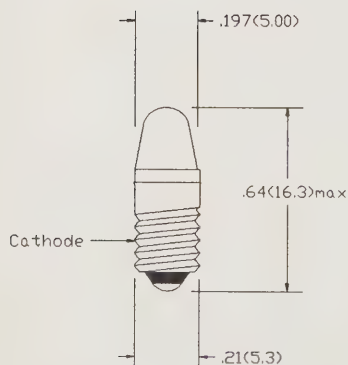
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MS180 (Center Anode) MS180C (Center Cathode)	-B -E	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series)	2 ^[2]	—	—	—	—
				5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
			A (AMBER, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
				12	12V/18mA	5V/5mA	15V/23mA	5-15
			Y (YELLOW, E Series Only)	12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	—
			G (GREEN, All Series)	24H	24V/17mA	15V/10mA	28V/20mA	—
				28	28V/11mA	15V/5.5mA	30V/12mA	—
				28H	28V/16.5mA	15V/8mA	30V/18mA	—

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MS180-BCA24HD).
2. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS180-BG2 (T-1³/₄ Low Profile, Sub-Miniature Screw Base, B Series, Diffused GREEN, External Resistor Required)
MS180-ECR12H (T-1³/₄ Low Profile, Sub-Miniature Screw Base, E Series, Non-Diffused RED, 12Vdc at 27mA)

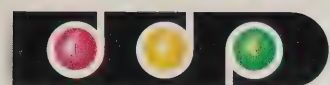


Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.

MS180, MS180C



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

LOW PROFILE, WEDGE BASE

Red, Amber, Yellow or Green

Diffused or Non-Diffused LEDs

2 to 28 Volts AC or DC

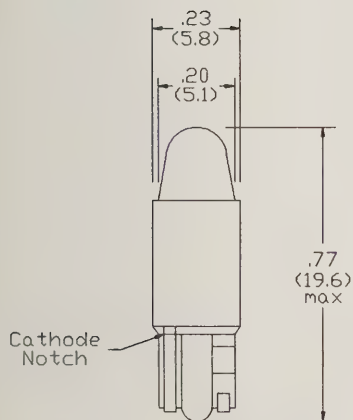
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ⁽¹⁾				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
WB180	-B	C (Non-Diffused)	R (RED, All Series)	2 ⁽²⁾	—	—	—	—
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
			Y (YELLOW, E Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
			G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	—
				24H	24V/17mA	15V/10mA	28V/20mA	—
				28	28V/11mA	15V/5.5mA	30V/12mA	—
				28H	28V/16.5mA	15V/8mA	30V/18mA	—

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (WB180-ECR28D).
2. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **WB180-BCA24H** (T-1³/₄ Low Profile, Sub-Miniature Wedge Base, B Series, Non-Diffused AMBER, 24Vdc at 17mA)
WB180-ER12 (T-1³/₄ Low Profile, Sub-Miniature Wedge Base, E Series Diffused RED, 12Vdc at 18mA)



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

WB180



Data Display Products

T-1^{3/4} SUB-MINIATURE LAMP

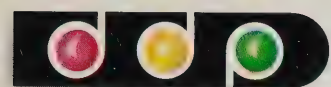
BAYONET BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]			
				Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MB200	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---
	-E		A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA
	-U	For Diffused, Omit Letter		5H	5V/27mA	3.6V/14mA	6V/40mA
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^[3] [4] (Low Power, Diffused Only) -X-2 ^[3] (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only) -FUCX ^[3] (Wide Angle Illuminator, Non-Diffused) -FUWX ^[3] (Wide Angle Illuminator, Water Clear)	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA
				12H	12V/27mA	5V/8mA	15V/36mA
			G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA
				24H	24V/17mA	15V/10mA	28V/20mA
				28	28V/11mA	15V/5.5mA	30V/12mA
				28H	28V/16.5mA	15V/8mA	30V/18mA



Data Display Products

T-1 $\frac{3}{4}$ SUB-MINIATURE LAMP

BAYONET BASE

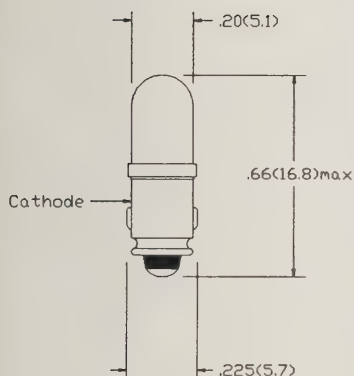
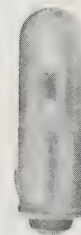


1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MB200-R2K24HD).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.

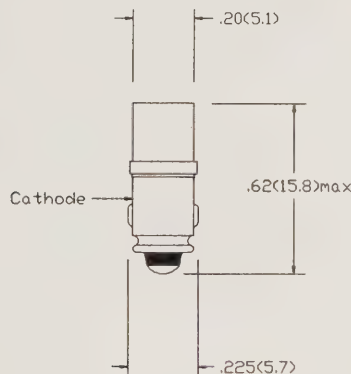
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB200-GLP2 (T-1 $\frac{3}{4}$ Sub-Miniature Bayonet Base, Low Power GREEN, External resistor required.)
MB200-UWY5H (T-1 $\frac{3}{4}$ Sub-Miniature Bayonet Base, U Series, Water Clear YELLOW, 5Vdc at 27mA)



Available With Center Cathode



Available With Center Cathode

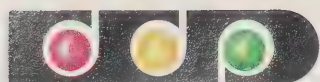
MB200

MB200, MB200C, Wide Angle Illuminator

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

MULTI-CHIP, BAYONET BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

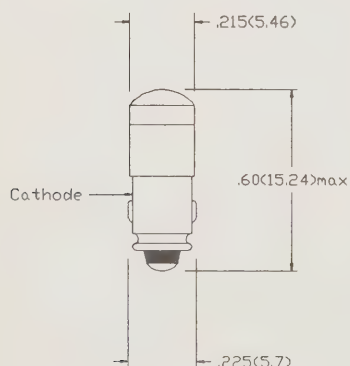
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MB200	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
				6	6V/55mA	4.8V/20mA	6.4V/65mA	
	-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB200-PG15AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MB200-ER110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB200-G110-6 (T-1³/₄ Sub-Miniature Bayonet Base, GREEN, 6 Chip Multi-Chip, 110Vac)
MB200-A24-6 (T-1³/₄ Sub-Miniature Bayonet Base, AMBER, 6 Chip Multi-Chip, 24Vdc at 22mA)

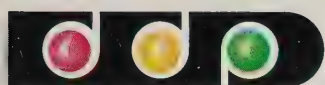


Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.

MB200, Multi-Chip



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

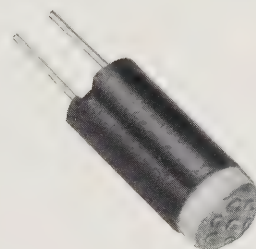
MULTI-CHIP, BI-PIN

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
BP202 ^[3]	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
-PG (Pure GREEN)	12/20	555						



- For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (BP202-A24AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (BP202-O110DC-6).
- Luminous intensity measured at 20mA.
- Mates with BPS-1 socket below.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

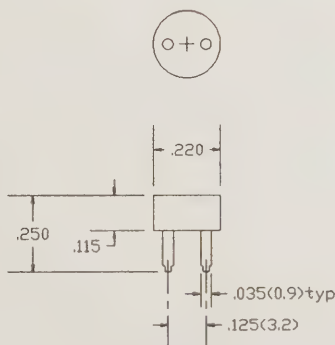
Example: BP202-G24-6 (T-1³/₄ Sub-Miniature Bi-Pin Base, GREEN, 6 Chip Multi-Chip, 24Vdc at 22mA)
BP202-ER110-6 (T-1³/₄ Sub-Miniature Bi-Pin Base, Ultra RED, 6 Chip Multi-Chip, 110Vac)

Socket (For Use with BP202)
Part Number
BPS-1

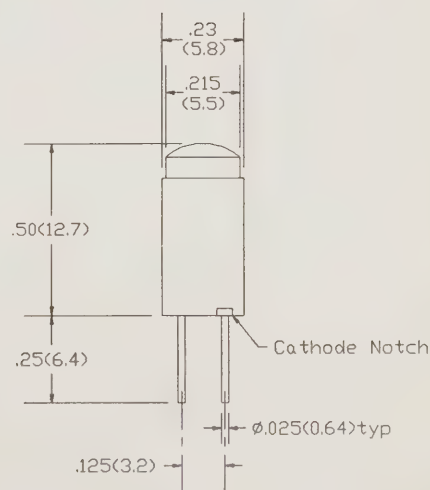
TO ORDER:

Select part number in **BOLD** from above table.

Example: BPS-1 (Bi-Pin Socket for Use with BP202 Lamp)



BPS-1 Socket Mates With BP182/202.



All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.

BPS-1

BP202, Multi-Chip



Data Display Products


T-1³/₄ SUB-MINIATURE LAMP

BI-PIN BASE

Red, Amber, Yellow or Green

Optional Socket Available

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
BP202 ^[2]	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[3]	---	---	---	---
BP203	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U			5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[4] [5]} (Low Power, Diffused Only) -X-2 ^{[4] [5]} (Dual Chip, Non-Diffused Only) -LRG Bi-Color, Red/ Grn, Milky Diffused Only) -ERB ^[5] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	
								

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (BP203-EWG28D).
2. Mates with BPS-1 socket on the next page.
3. External resistor required.
4. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Dual Chip is also available in O (ORANGE).
5. Contact factory for Electrical Assembly data.



Data Display Products

T-1 $\frac{3}{4}$ SUB-MINIATURE LAMP

BI-PIN BASE



TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

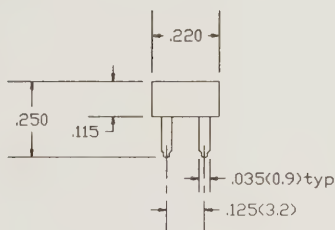
Example: BP203-R3K5H (T-1 $\frac{3}{4}$ Sub-Miniature Bi-Pin Base, Hi Intensity RED, 5Vdc at 27mA)
BP202-BA12 (T-1 $\frac{3}{4}$ Sub-Miniature Bi-Pin Base, B Series, Diffused AMBER, 12Vdc at 18mA)

Socket (For Use with BP202)
Part Number
BPS-1

TO ORDER:

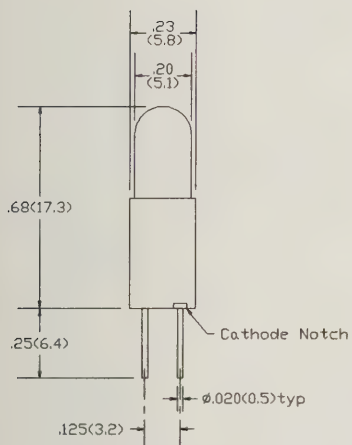
Select part number in **BOLD** from above table.

Example: BPS-1 (Bi-Pin Socket for Use with BP202 Lamp)



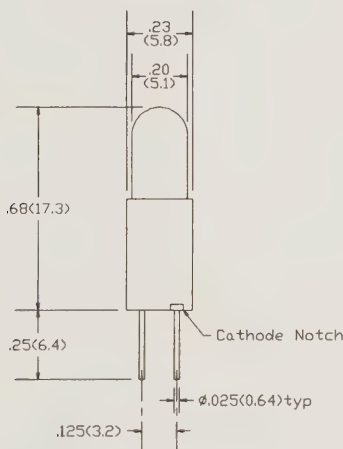
BPS-1 Socket Mates With BP182/202.

BPS-1



BP202 Mates With BPS-1 Socket.

BP202

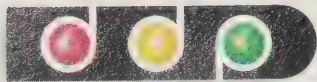


BP203

All dimensions are in inches (mm)

Tolerances: .xx"(.x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

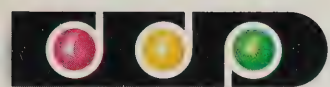
FLANGE BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]						
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)		
MF200 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	—	—	—	—		
	-E		A (AMBER, All Series)		5V/17mA	3.6V/10mA	8V/32mA	3-6.3		
	MF200C (Center Cathode)	-U	For Diffused, Omit Letter		Y (YELLOW, E & U Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
		Series Below Do Not Require Encapsulation or Color Code:	W (Water Clear, E & U Series Only)		Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
						12H	12V/27mA	5V/8mA	15V/36mA	5-15
						24	24V/9mA	20V/7.5mA	30V/12mA	—
						24H	24V/17mA	15V/10mA	28V/20mA	—
						28	28V/11mA	15V/5.5mA	30V/12mA	—
						28H	28V/16.5mA	15V/8mA	30V/18mA	
						-XLP ^{[3] [4]} (Low Power, Diffused Only)				
-X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only)										
-LRG (Bi-Color, Red /Grn, Milky Diffused Only)										
-ERB ^[4] (Blinking Red, Diffused Only)										
-R2K (Hi-Intensity, Water Clear Red Only)										
-R3K (Hi-Intensity, Water Clear Red Only)										
-FUCX ^[3] (Wide Angle Illuminator, Non-Diffused)										
-FUWX ^[3] (Wide Angle Illuminator, Water Clear)										



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

FLANGE BASE

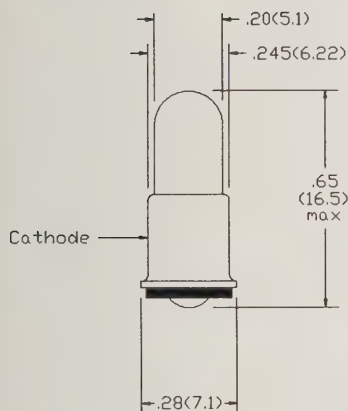


1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MF200-UWY28D).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.

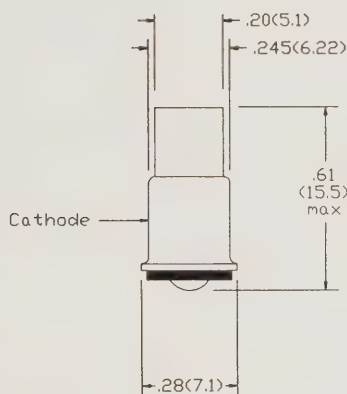
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF200-LRG5H (T-1³/₄ Sub-Miniature Flange Base, Bi-Color RED/GRN, 5Vdc at 27mA)
MF200C-UY24HD (T-1³/₄ Sub-Miniature Flange Base Center Cathode, U Series, Diffused YELLOW, 24Vac)



Available With Center Cathode



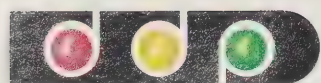
Available With Center Cathode

MF200, MF200C

MF200, MF200C, Wide Angle Illuminator

All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.





Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

MULTI-CHIP, FLANGE BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

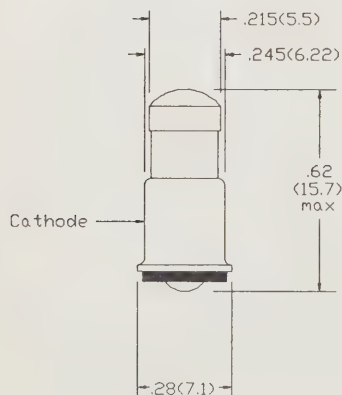
Model	Color	Electrical Assembly ^[1]						Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MF200 (Center Anode) MF200C (Center Cathode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
	-R (RED)	25/50	630	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-O (ORANGE)	40/60	610	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-A (AMBER)	28/40	585	60	60V/16mA	40V/10mA	64V/18mA	
				110	110Vac/3RMS	50Vac/1RMS	130Vac/3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MF200-R12AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MF200-G110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF200-PG28-6 (T-1³/₄ Sub-Miniature Flange Base, Pure GREEN, 6 Chip Multi-Chip, 28Vdc at 18mA)
MF200-O60-6 (T-1³/₄ Sub-Miniature Flange Base, ORANGE, 6 Chip Multi-Chip, 60Vdc at 16mA)

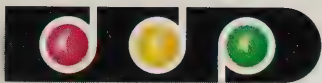


Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

MF200, MF200C, Multi-Chip

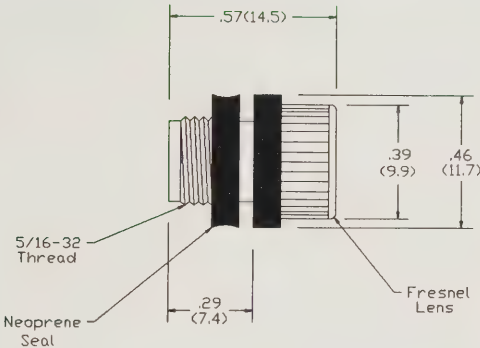


Data Display Products

T-1³/₄ SUB-MINIATURE LAMP
SOCKET AND LENS, FLANGE BASE

- Red, Amber, Yellow, Smoke or White
- Diffused or Non-Diffused Lenses
- Fresnel Lens for Wide Viewing Angle

LENS (For Use with MFS1-B Socket Below)		
Model	Encapsulation	Color
MF61	-C (Non-Diffused)	R (Red)
		A (Amber)
	-N (Diffused)	Y (Yellow)
		G (Green)
		W (White)
		-S (Smoke) ^[1]



MF61

1. Do not select an Encapsulation Code with a Smoke color (MF61-S).

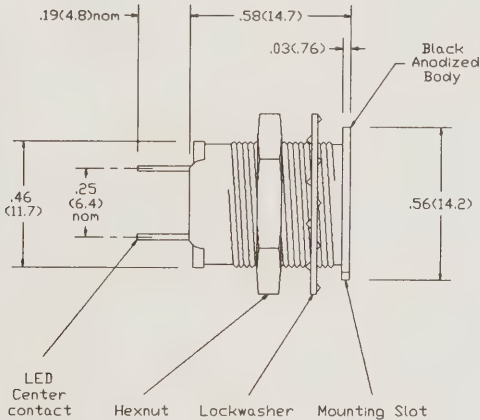
TO ORDER:
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF61-NW (Diffused White Lens)
MF61-CR (Non-Diffused Red Lens)

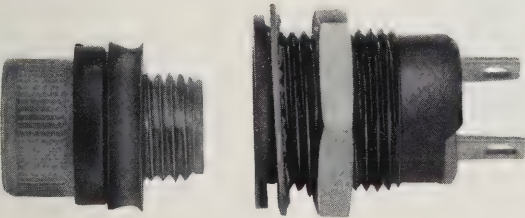
Socket (For Use with MF61-XX Lens)	
Part Number	
MFS1-B	

TO ORDER:
Select the part number from above table.

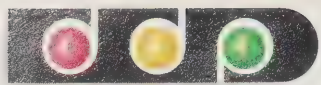
Example: MFS1-B (Socket for T-1³/₄ Sub-Miniature Flange Base)



MFS1-B



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

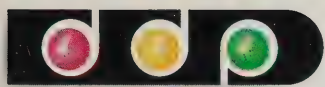
GROOVE BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MG200 (Center Anode)	-M	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	—	—	—	—
	-B	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
MG200C (Center Cathode)	-E			5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	-U	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^[3] (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only) -FUCX ^[3] (Wide Angle Illuminator, Non-Diffused) -FUWX ^[3] (Wide Angle Illuminator, Water Clear)	G (GREEN, All Series)	12H	12V/27mA	5V/8mA	15V/36mA	5-15	
			24	24V/9mA	20V/7.5mA	30V/12mA	—	
			24H	24V/17mA	15V/10mA	28V/20mA	—	
			28	28V/11mA	15V/5.5mA	30V/12mA	—	
			28H	28V/16.5mA	15V/8mA	30V/18mA		



Data Display Products

T-1 $\frac{3}{4}$ SUB-MINIATURE LAMP

GROOVE BASE

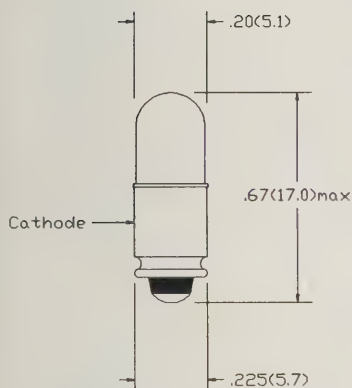


1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MG200-MA24HD).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.

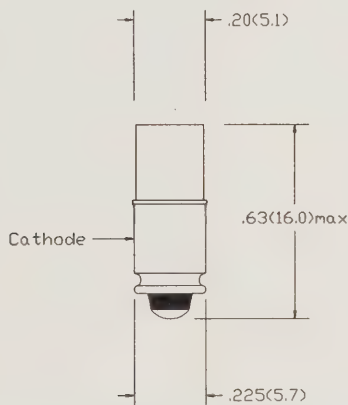
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MG200-LRG2 (T-1 $\frac{3}{4}$ Sub-Miniature Groove Base, Bi-Color RED/GRN, External resistor required.)
MG200C-UA24HD (T-1 $\frac{3}{4}$ Sub-Miniature Groove Base, Center Cathode, U Series, Diffused AMBER, 24Vac)



Available With Center Cathode



Available With Center Cathode

MG200, MG200C

MG200, MG200C, Wide Angle Illuminator

All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025(.63), .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.





T-1³/₄ SUB-MINIATURE LAMP

Data Display Products

MULTI-CHIP, GROOVE BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

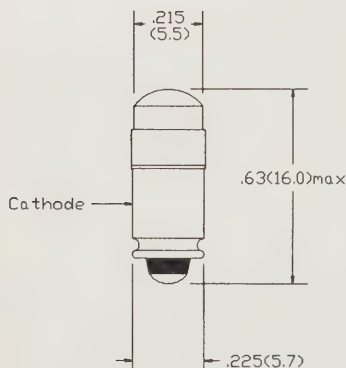
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MG200 (Center Anode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
MG200C (Center Cathode)	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
				24	24V/22mA	18V/11mA	25V/24mA	
	-O (ORANGE)	40/60	610	28	28V/18mA	21V/11mA	30V/20mA	
	-A (AMBER)	28/40	585	60	60V/16mA	40V/10mA	64V/18mA	
				110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
-PG (Pure GREEN)	12/20	555						

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MG200-A24AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MG200-R110DC-6).
2. Luminous intensity measured at 20mA.

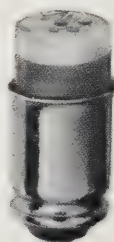
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MG200-BR24-6 (T-1³/₄ Sub-Miniature Groove Base, Bright RED, 6 Chip Multi-Chip, 24Vdc at 22mA)
MG200-G5-6 (T-1³/₄ Sub-Miniature Groove Base, GREEN, 6 Chip Multi-Chip, 5Vdc at 55mA)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

MG200, MG200C, Multi-Chip

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

MULTI-CHIP, SCREW BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC Operation

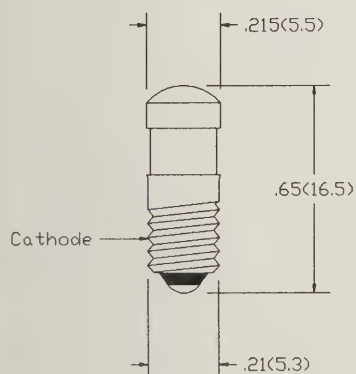
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MS200 (Center Anode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
				6	6V/55mA	4.8V/20mA	6.4V/65mA	
MS200C (Center Cathode)	-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
				24	24V/22mA	18V/11mA	25V/24mA	
	-R (RED)	25/50	630	28	28V/18mA	21V/11mA	30V/20mA	
				60	60V/16mA	40V/10mA	64V/18mA	
	-O (ORANGE)	40/60	610	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
-G (GREEN)	40/60	565						
-PG (Pure GREEN)	12/20	555						

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS200-O60AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MS200-O110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **MS200-G28-6** (T-1³/₄ Sub-Miniature Screw Base, GREEN, 6 Chip Multi-Chip, 28Vdc at 18mA)
MS200C-O6-6 (T-1³/₄ Sub-Miniature Screw Base, Center Cathode, ORANGE, 6 Chip Multi-Chip, 6Vdc at 55mA)



Available With Center Cathode



All dimensions are in inches(mm)
 Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
 Specifications are subject to change without notice.

MS200, MS200C, Multi-Chip

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



T-1³/₄ SUB-MINIATURE LAMP

Data Display Products

SCREW BASE

Red, Amber, Yellow or Green

Nickel Plated Base

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MS200 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
MS200C (Center Cathode)	-U	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code:			12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
	-XLP ^[3] ^[4] (Low Power, Diffused Only)		G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
	-X-2 ^[3] (Dual Chip, Non-Diffused Only)			28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	
	-LRG (Bi-Color Red /Grn, Milky Diffused Only)							
	-ERB ^[4] (Blinking Red, Diffused Only)							
	-R2K (Hi-Intensity, Water Clear Red Only)							
-R3K (Hi-Intensity, Water Clear Red Only)								
-FUCX ^[3] (Wide Angle Illuminator, Non-Diffused)								
-FUWX ^[3] (Wide Angle Illuminator, Water Clear)								



Data Display Products

T-1¾ SUB-MINIATURE LAMP
SCREW BASE

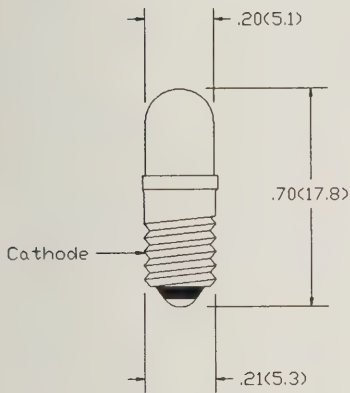


1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (MS200-BA28HD).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.

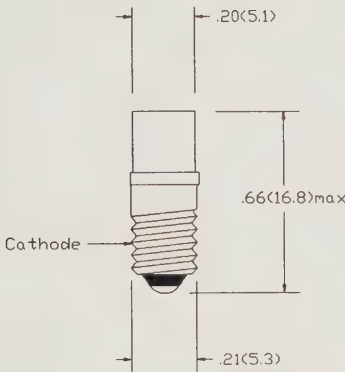
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS200-R2K2 (T-1¾ Sub-Miniature Screw Base, Hi-Intensity RED, External resistor required.)
MS200C-UR12 (T-1¾ Sub-Miniature Screw Base, Center Cathode, U Series, Diffused RED, 12Vdc at 18mA)



Available With Center Cathode



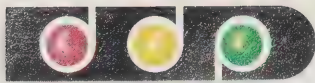
Available With Center Cathode

MS200, MS200C

MS200, MS200C, Wide Angle Illuminator

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.





Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

WEDGE BASE

Red, Amber, Yellow or Green

Diffused, Non-Diffused or Water Clear LEDs

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
WB200	-B	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E		A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U		Y (YELLOW, E & U Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^[3] (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only) -FUCX ^[3] (Wide Angle Illuminator, Non-Diffused) -FUWX ^[3] (Wide Angle Illuminator, Water Clear)	W (Water Clear, E & U Series Only)	G (GREEN, All Series)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	--
				24H	24V/17mA	15V/10mA	28V/20mA	--
				28	28V/11mA	15V/5.5mA	30V/12mA	--
				28H	28V/16.5mA	15V/8mA	30V/18mA	



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

WEDGE BASE

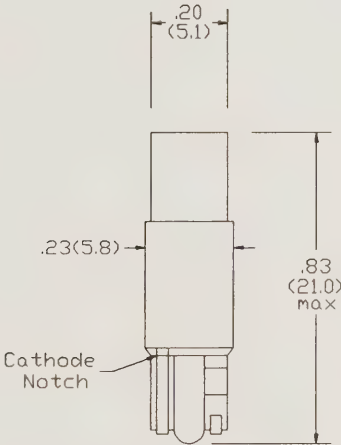
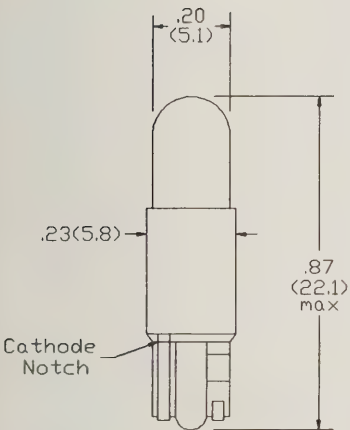


- 1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (WB200-LRG24HD).
- 2. External resistor required.
- 3. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
- 4. Contact factory for Electrical Assembly data.

TO ORDER:

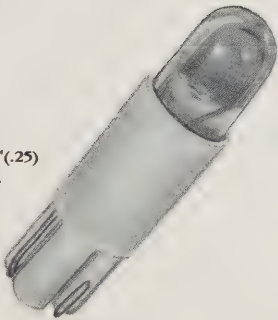
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **WB200-EA5H** (T-1³/₄ Sub-Miniature Wedge Base, E Series, Diffused AMBER, 5Vdc at 27mA)
WB200-BCR5 (T-1³/₄ Sub-Miniature Wedge Base, B Series, Non-Diffused RED, 5Vdc at 17mA)



WB200

WB200, Wide Angle Illuminator



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025(.63), .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SUB-MINIATURE LAMP

MULTI-CHIP, WEDGE BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

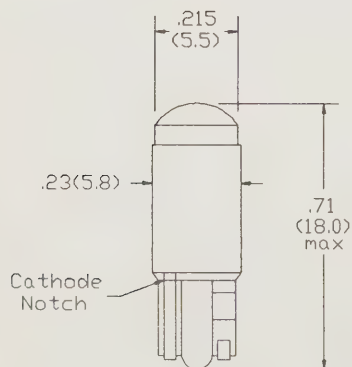
Model	Color		Electrical Assembly ^[1]					Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
WB200	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
				24	24V/22mA	18V/11mA	25V/24mA	
	-R (RED)	25/50	630	28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (WB200-G28AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (WB200-A110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: WB200-ER12-6 (T-1³/₄ Sub-Miniature Wedge Base, Ultra RED, 6 Chip Multi-Chip, 12Vdc at 37mA)
WB200-A15-6 (T-1³/₄ Sub-Miniature Wedge Base, AMBER, 6 Chip Multi-Chip, 15Vdc at 20mA)



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.

WB200, Multi-Chip





T-3 $\frac{1}{4}$ MINIATURE LAMP

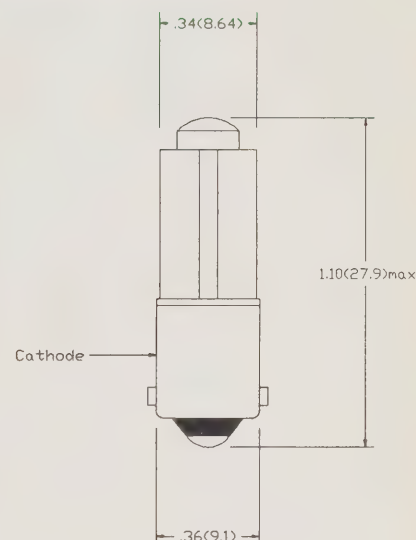
MULTI-CHIP, BAYONET BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

Model	Color	Electrical Assembly ^[1]						Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MB400 (Center Anode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
				6	6V/55mA	4.8V/20mA	6.4V/65mA	
MB400C (Center Cathode)	-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
				24	24V/22mA	18V/11mA	25V/24mA	
MBL400 (Long Base, Center Anode)	-R (RED)	25/50	630	28	28V/18mA	21V/11mA	30V/20mA	
				60	60V/16mA	40V/10mA	64V/18mA	
				110	110Vac/3RMS	50Vac/1RMS	130Vac/3.5RMS	
MBL400C (Long Base, Center Cathode)	-A (AMBER)	28/40	585					
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					



Available With Center Cathode

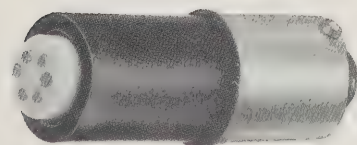
MBL400, MBL400C, Multi-Chip

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB400-G15AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MB400-ER110DC-6).
2. Luminous intensity measured at 20mA.

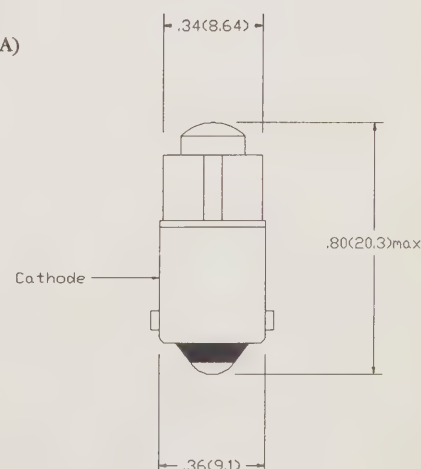
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **MB400-R110-6** (T-3 $\frac{1}{4}$ Miniature Bayonet Base, RED, 6 Chip Multi-Chip, 110Vac)
MBL400-G28-6 (T-3 $\frac{1}{4}$ Long Miniature Bayonet Base, GREEN, 6 Chip Multi-Chip, 28Vdc at 18mA)



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Available With Center Cathode

MB400, MB400C, Multi-Chip



Data Display Products

T-3¹/₄ MINIATURE LAMP

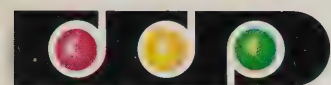
BAYONET BASE

Red, Amber, Yellow or Green

Bi-Color, Wide Angle Illuminator, Blinking and Others Available

2 to 220 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MB400 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	----	----	----	---
	-E			5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
MB400C (Center Cathode)	-U	For Diffused, Omit Letter	A (AMBER, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
MBL400 (Long Base, Center Anode)	Series Below Do Not Require Encapsulation or Color Code:	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
			G (GREEN, All Series)	12H	12V/27mA	5V/8mA	15V/36mA	5-15
	-XLP ^{[3] [4]} (Low Power, Diffused Only)			24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
				48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
	-LRG (Bi-Color Red /Grn, Milky Diffused Only)			110 ^[5]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130
	-ERB ^[4] (Blinking Red, Diffused Only)			110H ^[5]	110Vac 3RMS	---	130Vac/ 3.9RMS	130
	-R2K (Hi-Intensity, Water Clear Red Only)			220 ^[5]	220Vac 1RMS	---	250Vac/ 1.4RMS	250
	-R3K (Hi-Intensity, Water Clear Red Only)							
	-FUCX ^[3] (Wide Angle Illuminator, Non-Diffused)							
	-FUWX ^[3] (Wide Angle Illuminator, Water Clear)							



Data Display Products

T-3 $\frac{1}{4}$ MINIATURE LAMP

BAYONET BASE



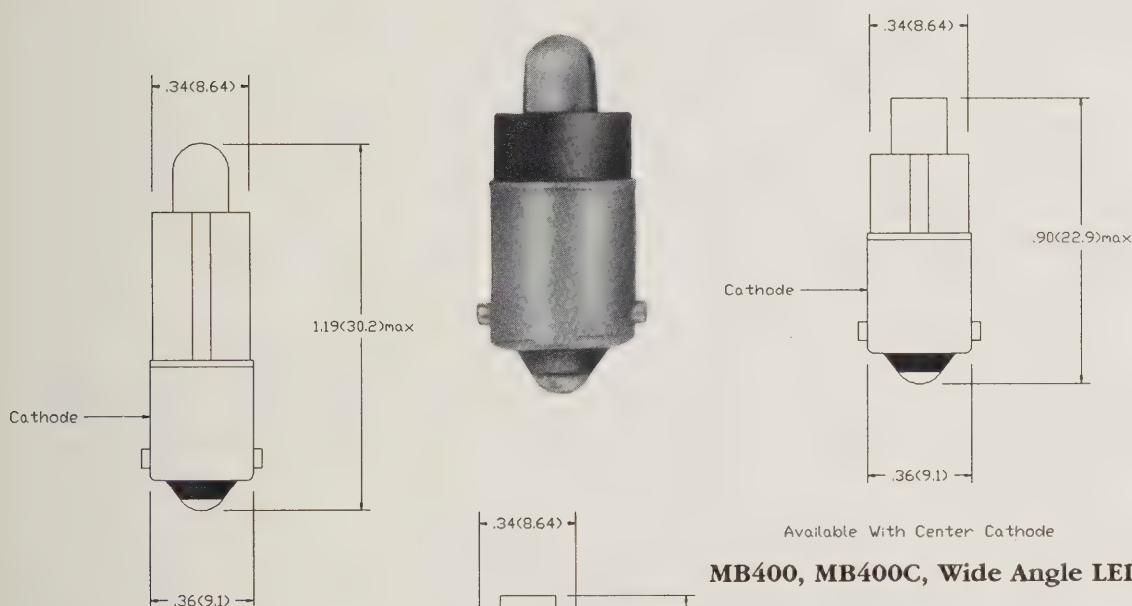
1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (MB400-EWY48D). For 110Vdc and 220Vdc, insert DC after the Electrical Assembly (MB400-R110DC). 110H is available in Vac only.
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.
5. For 110V to 220V AC or DC, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (MB400-X110-C, MB400-X110, MB400-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB400-R3K24H (T-3 $\frac{1}{4}$ Miniature Bayonet Base, Hi-Intensity RED, 24Vdc at 17mA)

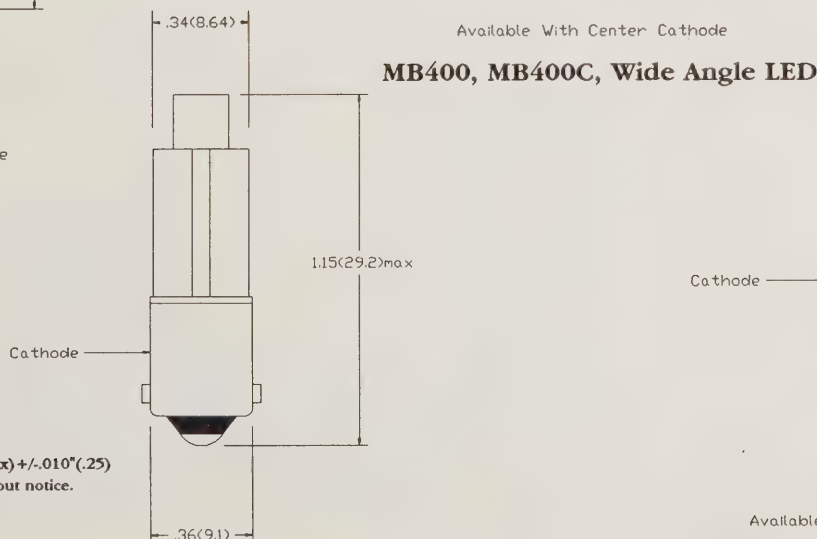
MBL400-EWG5H (T-3 $\frac{1}{4}$ Long Miniature Bayonet Base, E Series, Water Clear GREEN, 5Vdc at 27mA)



Available With Center Cathode

MBL400, MBL400C

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

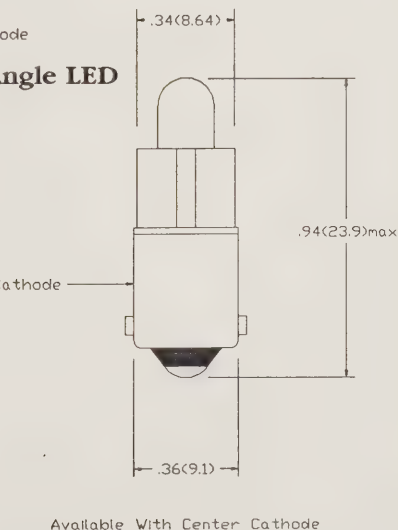


Available With Center Cathode

MB400, MB400C, Wide Angle LED

Available With Center Cathode

MBL400, MBL400C, Wide Angle LED



Available With Center Cathode

MB400, MB400C



Data Display Products

T-3¼ MINIATURE LAMP

MULTI-CHIP WITH LENS, BAYONET BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs with Water Clear Lens

5 to 110 Volts AC or DC

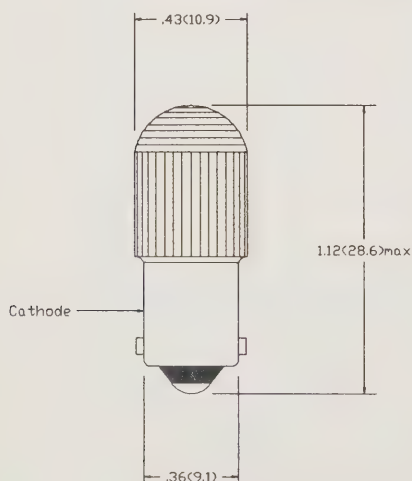
Model	Color				Electrical Assembly ^[1]			Multi-Chip	Lens
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current		
MB401 (Center Anode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6	-CW (Water Clear)
MB401C (Center Cathode)	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA		
				12	12V/37mA	10V/25mA	12.5V/40mA		
				15	15V/20mA	14V/15mA	16V/25mA		
				24	24V/22mA	18V/11mA	25V/24mA		
	-O (ORANGE)	40/60	610	28	28V/18mA	21V/11mA	30V/20mA		
				60	60V/16mA	40V/10mA	64V/18mA		
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS		
	-G (GREEN)	40/60	565						
	-PG (Pure GREEN)	12/20	555						

- For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB401-A24AC-6-CW). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MB401-R110DC-6-CW).
- Luminous intensity measured at 20mA.

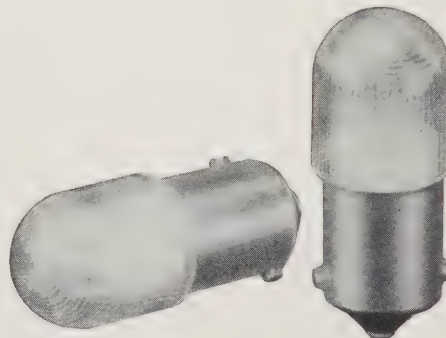
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB401-G24-6-CW (T-3¼ Miniature Bayonet Base, GREEN, 6 Chip Multi-Chip, 24Vdc at 22mA, Water Clear Lens)
MB401-O6-6-CW (T-3¼ Miniature Bayonet Base, ORANGE, 6 Chip Multi-Chip, 6Vdc at 55mA, Water Clear Lens)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx'(x)+/-0.25'(.63), .xxx'(xx)+/-0.10'(.25)
Specifications are subject to change without notice.

MB401, MB401C

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-3¹/₄ MINIATURE LAMP

FOUR T-1 LED CLUSTER, BAYONET BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 220 Volts AC or DC

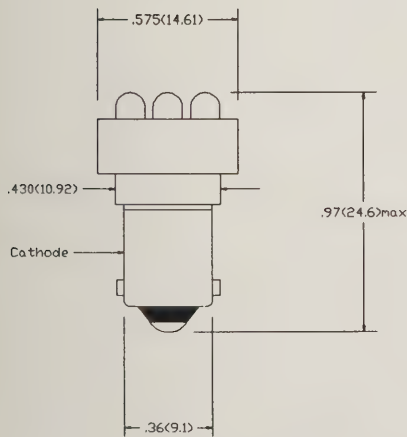
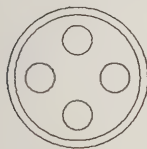
Model	Color		Electrical Assembly ^[1]			Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MB400 (Center Anode)	-R (RED)	6	6V/44mA Green 6V/33mA Others	5V/16mA Green 5V/19mA Others	7V/60mA Green 7V/50mA Others	-4CL1
	-A (AMBER)	12	12V/30mA	10V/18mA	14/50mA	
MB400C (Center Cathode)	-AY (AMBER/ YELLOW)	24	24V/30mA	10V/ 5mA	28V/50mA	
		28	28V/25mA	12V/ 5mA	29V/26mA	
		48	48V/12mA	20V/ 3.5mA	50V/12.5mA	
	-Y (YELLOW)	110	110Vac/ 10RMS	50Vac/ 3.5RMS	120Vac/ 11RMS	
	-G (GREEN)	220	220Vac/ 4RMS	110Vac/ 2RMS	240Vac/ 4.5RMS	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac or 220Vac (MB400-R48AC-4CL1). For 110Vdc to 220Vdc, insert DC after the Electrical Assembly (MB400-Y110DC-4CL1).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB400-AY48-4CL1 (T-3¹/₄ Miniature Bayonet Base, AMBER/YELLOW, Four T-1 LED Cluster, 48Vdc at 12mA)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

MB400, MB400C



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FAX (213) 640-7639





Data Display Products

T-3 $\frac{1}{4}$ MINIATURE LAMP

SEVEN T-1 LED CLUSTER, BAYONET BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 110 Volts AC or DC

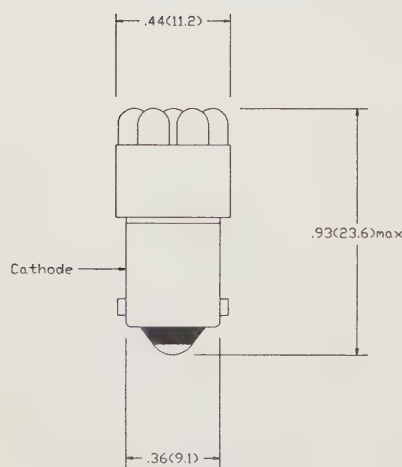
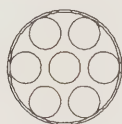
Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MB400 (Center Anode)	-R (RED)	6	6V/95mA	4.5V/30mA	7V/125mA	-7CL1
		12	12V/60mA	5V/10mA	14/72mA	
MB400C (Center Cathode)	-A (AMBER)	24	24V/24mA Red 24V/28mA Others	18V/11mA	26V/28mA Red 26V/34mA Others	
		28	28V/17mA	18V/5.5mA	30V/20mA	
	-AY (AMBER/ YELLOW)	48	48V/12.5mA	20V/2mA	50V/13.5mA	
		60	60V/17mA	20V/2mA	65V/20mA	
	-Y (YELLOW)	110	110Vac/ 4.5RMS Red 8RMS Others	50Vac/ 1.5RMS Red 3RMS Others	120Vac/ 5RMS Red 9.5RMS Others	
	-G (GREEN)					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB400-AY28AC-7CL1). For 110Vdc, insert DC after the Electrical Assembly (MB400-A110DC-7CL1).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB400-Y12-7CL1 (T-3 $\frac{1}{4}$ Miniature Bayonet Base, YELLOW, Seven T-1 LED Cluster, 12Vdc at 60mA)



Available With Center Cathode



All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.

MB400, MB400C





Data Display Products

T-3¼ MINIATURE LAMP

FOUR T-1¼ DUAL CHIP CLUSTER, BAYONET BASE

Red, Orange, Amber or Green

Dual Chip LEDs

12 to 110 Volts AC or DC

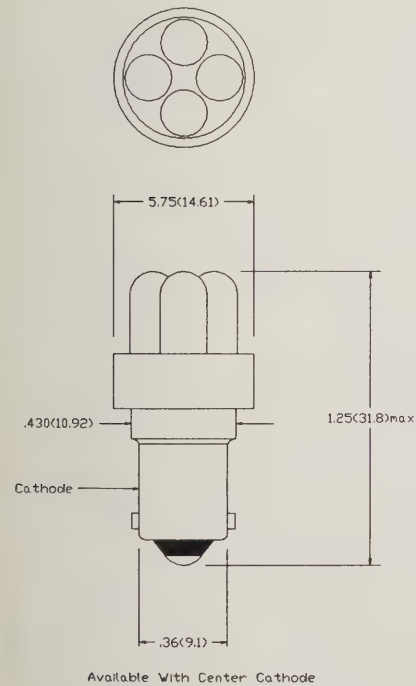
Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MB400 (Center Anode)	-R (RED)	12	12V/37mA	10V/20mA	14V/60mA	-4CL2-2
		15	15V/18mA	14V/11mA	16V/22mA	
MB400C (Center Cathode)	-O (ORANGE)	24	24V/21mA	18V/ 4mA	28V/30mA	
		28	28V/21mA	20V/ 6.5mA	30V/25mA	
	-A (AMBER)	48	48V/20mA	25V/ 5.5mA	52V/24mA	
		60	60V/14.5mA	40V/ 8mA	65V/16mA	
	-G (GREEN)	110	110Vac/10RMS	50Vac/ 5RMS	120Vac/11RMS	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB400-A24AC-4CL2-2). For 110Vdc, insert DC after the Electrical Assembly (MB400-O110DC-4CL2-2).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB400-R24-4CL2-2 (T-3¼ Miniature Bayonet Base, RED, Four T-1¼ Dual Chip LED Cluster, 24Vdc at 21mA)



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025(.63), .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.

MB400, MB400C



Data Display Products

T-3¹/₄ MINIATURE LAMP


FLANGE BASE

Red, Amber, Yellow or Green

Bi-Color, Wide Angle Illuminator, Blinking and Others Available

2 to 220 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MF400 (Center Anode)	-B	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series) A (AMBER, All Series)	2 ^[2]	-----	-----	-----	---
	-E			5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
MF400C (Center Cathode)	-U	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only) G (GREEN, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
MFL400 (Long Base, Center Anode)	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only)			12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
MFL400C (Long Base, Center Cathode)	-X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only) -FUCX ^[3] (Wide Angle Illuminator, Non-Diffused) -FUWX ^[3] (Wide Angle Illuminator, Water Clear)			24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
				48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	---	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	---	250Vac/ 1.4RMS	250







T-3¼ MINIATURE LAMP

FLANGE BASE

Data Display Products

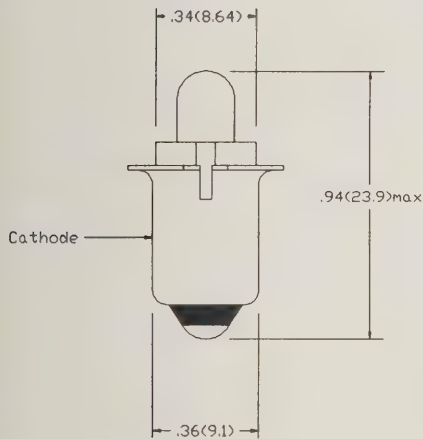


- 1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (MF400-R110). For 110DC and 220DC, insert DC after the Electrical Assembly (MFL400-R110DC-C). 110H is available in Vac only.
- 2. External resistor required.
- 3. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
- 4. Contact factory for Electrical Assembly data.
- 5. For 110V and 220V AC or DC, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (MF400-X110-C, MF400-X110, MF400-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).

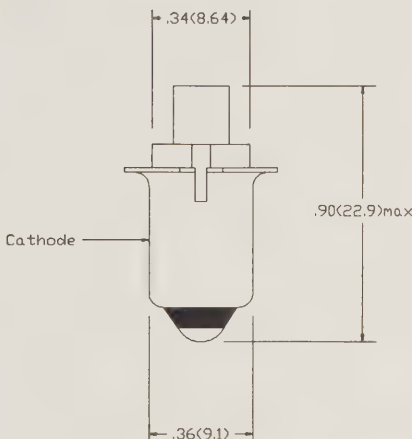
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF400-FUCY5 (T-3¼ Miniature Flange Base, Wide Angle Illuminator, YELLOW, 5Vdc at 17mA)
MFL400-BG12H (T-3¼ Long Miniature Flange Base, B Series, Diffused GREEN, 12Vdc at 27mA)



Available With Center Cathode

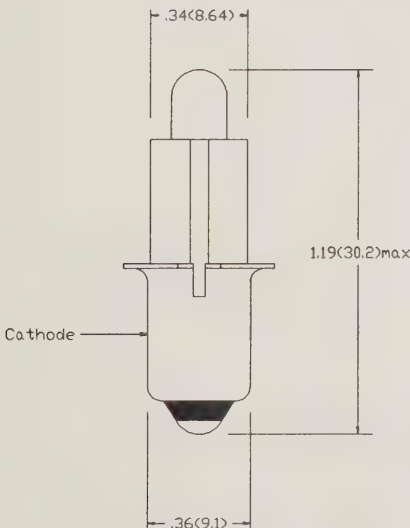


Available With Center Cathode

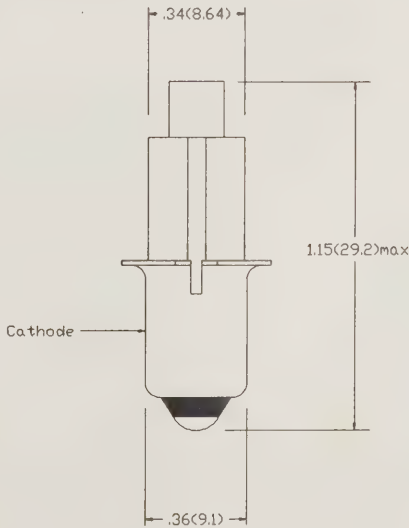
All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

MF400, MF400C

MF400, MF400C, Wide Angle LED



Available With Center Cathode



Available With Center Cathode

MFL400, MFL400C

MFL400, MFL400C, Wide Angle LED



Data Display Products

T-3¹/₄ MINIATURE LAMP

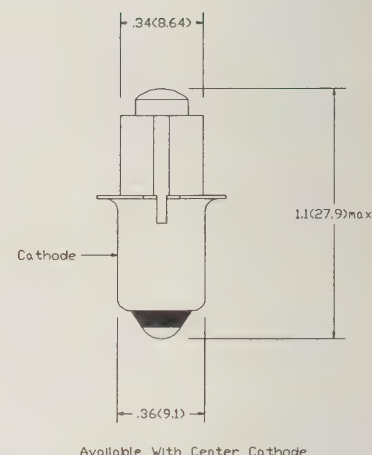
MULTI-CHIP, FLANGE BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MF400 (Center Anode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
MF400C (Center Cathode)	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
MFL400 (Long Base, Center Anode)	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
	-O (ORANGE)	40/60	610	28	28V/18mA	21V/11mA	30V/20mA	
				60	60V/16mA	40V/10mA	64V/18mA	
MFL400C (Long Base, Center Cathode)	-A (AMBER)	28/40	585	110	110Vac/3RMS	50Vac/1RMS	130Vac/3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					



Available With Center Cathode
MFL400, MFL400C

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MF400-PG15AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MF400-A110DC-6).
2. Luminous intensity measured at 20mA.

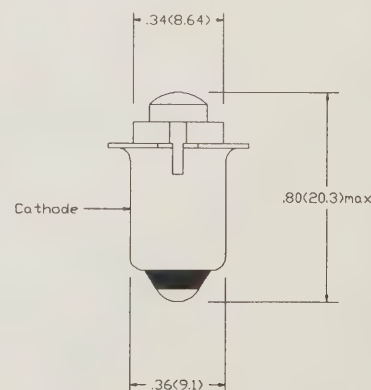
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF400-R5-6 (T-3¹/₄ Miniature Flange Base, RED, 6 Chip Multi-Chip, 5Vdc at 55mA)



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Available With Center Cathode
MF400, MF400C



Data Display Products

T-3 $\frac{1}{4}$ MINIATURE LAMP

FOUR T-1 LED CLUSTER, FLANGE BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 220 Volts AC or DC

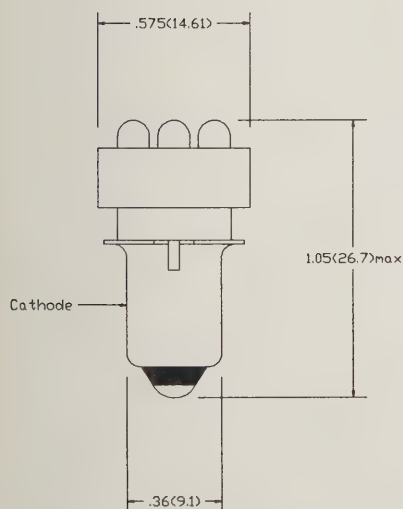
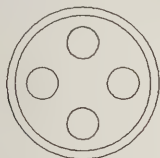
Model	Color	Electrical Assembly ⁽¹⁾				Cluster
			Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MF400 (Center Anode)	-R (RED)	6	6V/44mA Green 6V/33mA Others	5V/16mA Green 5V/19mA Others	7V/60mA Green 7V/50mA Others	-4CL1
MF400C (Center Cathode)	-A (AMBER)	12	12V/30mA	10V/18mA	14/50mA	
		24	24V/30mA	10V/ 5mA	28V/50mA	
	-AY (AMBER/ YELLOW)	28	28V/25mA	12V/ 5mA	29V/26mA	
		48	48V/12mA	20V/ 3.5mA	50V/12.5mA	
	-Y (YELLOW)	110	110Vac/ 10RMS	50Vac/ 3.5RMS	120Vac/ 11RMS	
	-G (GREEN)	220	220Vac/ 4RMS	110Vac/ 2RMS	240Vac/ 4.5RMS	

1. For AC operation, Insert AC after the Electrical Assembly, not required for 110Vac or 220Vac (MF400-AY12AC-4CL1). For 110Vdc to 220Vdc, insert DC after the Electrical Assembly (MF400-Y110DC-4CL1).

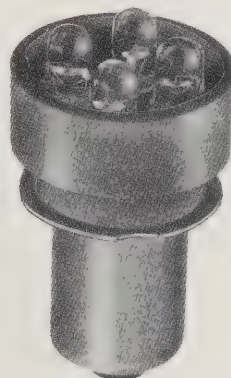
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF400-R12-4CL1 (T-3 $\frac{1}{4}$ Miniature Flange Base, RED, Four T-1 LED Cluster, 12Vdc at 30mA)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

MF400, MF400C

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Data Display Products

T-3¹/₄ MINIATURE LAMP

SEVEN T-1 LED CLUSTER, FLANGE BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 110 Volts AC or DC

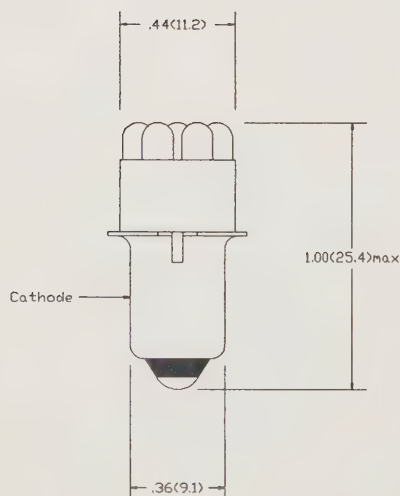
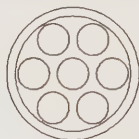
Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MF400 (Center Anode)	-R (RED)	6	6V/95mA	4.5V/30mA	7V/125mA	-7CL1
		12	12V/60mA	5V/10mA	14/72mA	
MF400C (Center Cathode)	-A (AMBER)	24	24V/24mA Red 24V/28mA Others	18V/11mA	26V/28mA Red 26V/34mA Others	
		28	28V/17mA	18V/5.5mA	30V/20mA	
	-AY (AMBER/YELLOW)	48	48V/12.5mA	20V/2mA	50V/13.5mA	
		60	60V/17mA	20V/2mA	65V/20mA	
	-Y (YELLOW)	110	110Vac/ 4.5RMS Red 8RMS Others	50Vac/ 1.5RMS Red 3RMS Others	120Vac/ 5RMS Red 9.5RMS Others	
	-G (GREEN)					

1. For AC Operation, Insert AC after the Electrical Assembly, not required for 110Vac (MF400-Y28AC-7CL1). For 110Vdc, insert DC after the Electrical Assembly (MF400-A110DC-7CL1).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF400-R24-7CL1 (T-3¹/₄ Miniature Flange Base, RED, Seven T-1 LED Cluster, 24Vdc at 24mA)



Available With Center Cathode



All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)

Specifications are subject to change without notice.

MF400, MF400C



Data Display Products

T-3¼ MINIATURE LAMP

FOUR T-1¼ DUAL CHIP CLUSTER, FLANGE BASE

Red, Orange, Amber or Green

Dual Chip LEDs

12 to 110 Volts AC or DC

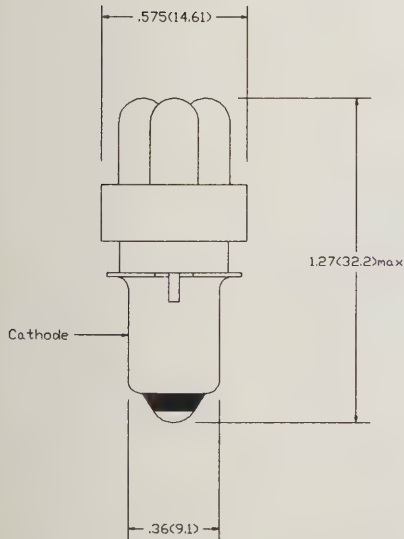
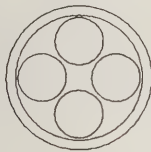
Model	Color	Electrical Assembly ⁽¹⁾				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MF400 (Center Anode)	-R (RED)	12	12V/37mA	10V/20mA	14V/60mA	-4CL2-2
		15	15V/18mA	14V/11mA	16V/22mA	
MF400C (Center Cathode)	-O (ORANGE)	24	24V/21mA	18V/ 4mA	28V/30mA	
		28	28V/21mA	20V/ 6.5mA	30V/25mA	
		48	48V/20mA	25V/ 5.5mA	52V/24mA	
		60	60V/14.5mA	40V/ 8mA	65V/16mA	
		110	110Vac/ 10RMS	50Vac/ 5RMS	120Vac/ 11RMS	
	-A (AMBER)					
	-G (GREEN)					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MF400-O15AC-4CL2-2). For 110Vdc, insert DC after the Electrical Assembly (MF400-G110DC-4CL2-2).

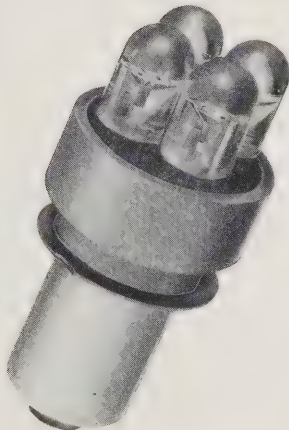
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MF400-G60-4CL2-2 (T-3¼ Miniature Flange Base, GREEN, Four T-1¼ Dual Chip LED Cluster, 60Vdc at 14.5mA)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025"(.63), .xxx(.xx) +/- .010"(.25)
Specifications are subject to change without notice.

MF400, MF400C

445 So. Douglas Street, El Segundo, CA 90245-4630

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Data Display Products

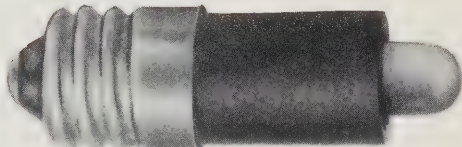
T-3¹/₄ MINIATURE LAMP

SCREW BASE

Red, Amber, Yellow or Green

Bi-Color, Wide Angle Illuminator, Blinking and Others Available

2 to 220 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
MS400 (Center Anode)	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
MS400C (Center Cathode)	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
MS400C (Center Cathode)	-U	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
MSL400 (Long Base, Center Anode)	Series Below Do Not Require Encapsulation or Color Code:		Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
MSL400 (Long Base, Center Anode)	-XLP ^{[3] [4]} (Low Power, Diffused Only)		G (GREEN, All Series)	12H	12V/27mA	5V/8mA	15V/36mA	5-15
MSL400C (Long Base, Center Cathode)	-X-2 ^[3] (Dual Chip, Non-Diffused Only)			24	24V/9mA	20V/7.5mA	30V/12mA	---
	-LRG (Bi-Color Red/ Grn, Milky Diffused Only)			24H	24V/17mA	15V/10mA	28V/20mA	---
	-ERB ^[4] (Blinking Red, Diffused Only)			28	28V/11mA	15V/5.5mA	30V/12mA	---
	-R2K (Hi-Intensity, Water Clear Red Only)			28H	28V/16.5mA	15V/8mA	30V/18mA	---
	-R3K (Hi-Intensity, Water Clear Red Only)			48	48V/10mA	30V/6mA	50V/10.2mA	---
	-FUCX ^[3] (Wide Angle Illuminator, Non-Diffused)			48H	48V/15mA	30V/9mA	50V/16mA	---
	-FUWX ^[3] (Wide Angle Illuminator, Water Clear)			60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	---	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	---	250Vac/ 1.4RMS	250
								



T-3¼ MINIATURE LAMP

SCREW BASE

Data Display Products

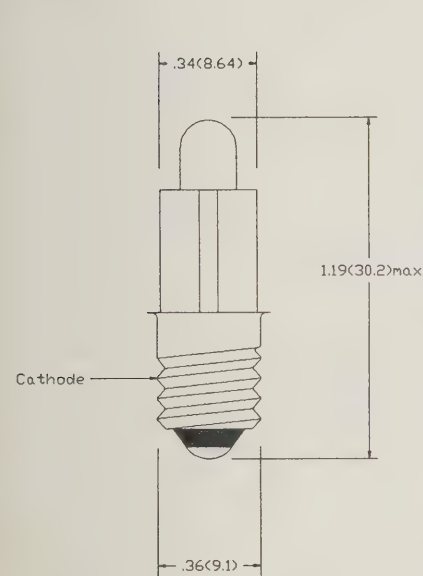


- 1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (MS400-BCA48HD). For 110Vdc to 220Vdc, insert DC after the Electrical Assembly (MSL400-R110DC-W). 110H is available in Vac only.
- 2. External resistor required.
- 3. Replace X with required color R (RED), A (AMBER) or G (GREEN). The Wide Angle Illuminators (FUCX or FUWX) are also available in Y (YELLOW), Dual Chip is also available in O (ORANGE).
- 4. Contact factory for Electrical Assembly data.
- 5. For 110V to 220V AC or DC, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (MS400-X110-C, MS400-X110, MS400-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).

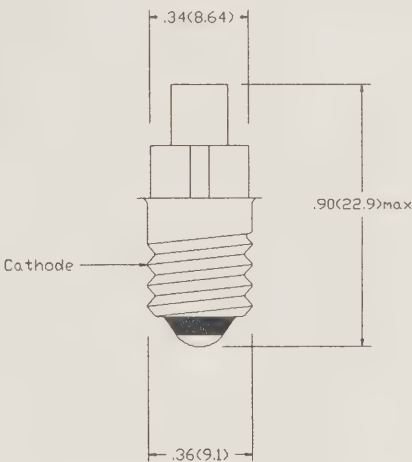
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

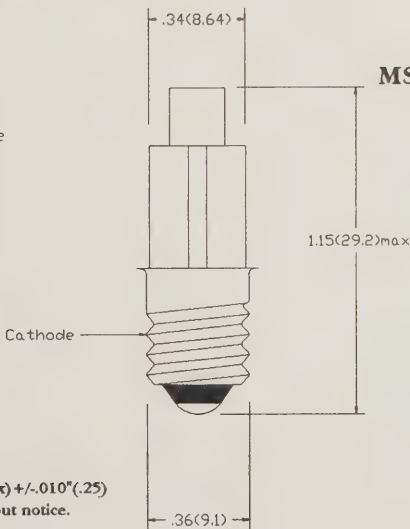
Example: MS400-FUWR24H (T-3¼ Miniature Screw Base, Wide Angle Illuminator, Water Clear, RED, 24Vdc at 17mA)
MSL400C-EG12H (T-3¼ Long Miniature Screw Base, Center Cathode, E Series, Diffused GREEN, 12Vdc at 27mA)



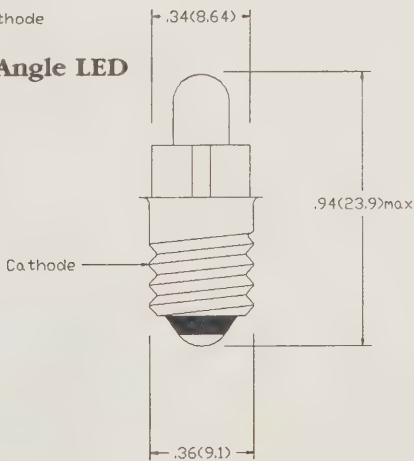
Available With Center Cathode
MSL400, MSL400C



Available With Center Cathode
MS400, MS400C, Wide Angle LED



Available With Center Cathode
MSL400, MSL400C, Wide Angle LED



Available With Center Cathode
MS400, MS400C

All dimensions are in inches(mm)
Tolerances: xx"(x) +/- .025"(.63), xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

T-3¼ MINIATURE LAMP

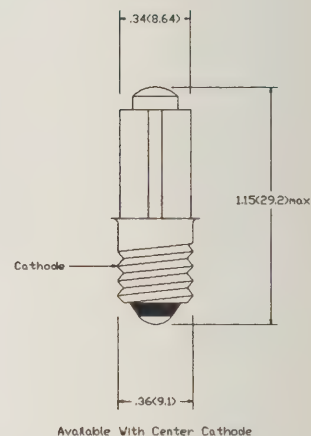
MULTI-CHIP, SCREW BASE

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min./Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MS400 (Center Anode)	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
				6	6V/55mA	4.8V/20mA	6.4V/65mA	
MS400C (Center Cathode)	-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
MSL400 (Long Base, Center Anode)	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
				60	60V/16mA	40V/10mA	64V/18mA	
MSL400C (Long Base, Center Cathode)	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					



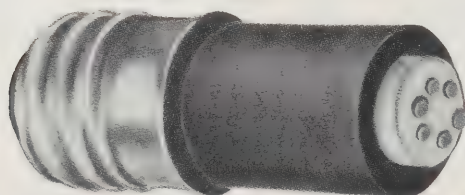
MSL400, MSL400C

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS400-G15AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MS400-A110DC-6).
2. Luminous intensity measured at 20mA.

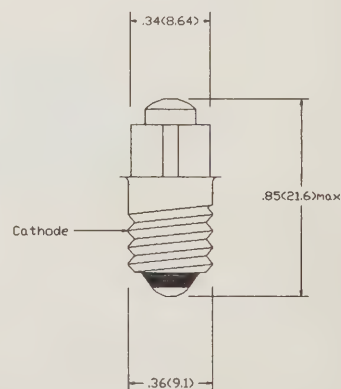
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

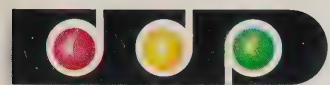
Example: MS400-PG**5**-**6** (T-3¼ Miniature Screw Base, Pure GREEN, 6 Chip Multi-Chip, 5Vdc at 55mA)



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025(.63), .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.



MS400, MS400C



Data Display Products

T-3 $\frac{1}{4}$ MINIATURE LAMP

FOUR T-1 LED CLUSTER, SCREW BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 220 Volts AC or DC

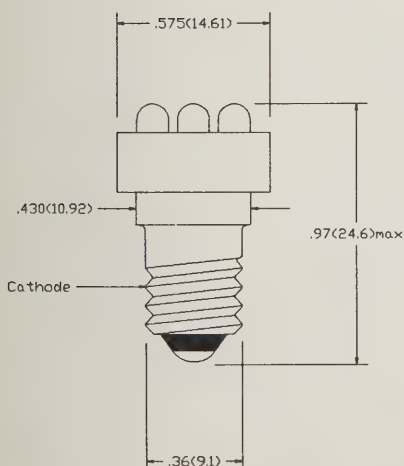
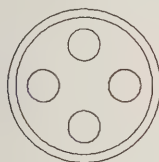
Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MS400 (Center Anode)	-R (RED)	6	6V/44mA Green 6V/33mA Others	5V/16mA Green 5V/19mA Others	7V/60mA Green 7V/50mA Others	-4CL1
	-A (AMBER)	12	12V/30mA	10V/18mA	14/50mA	
MS400C (Center Cathode)	-AY (AMBER/ YELLOW)	24	24V/30mA	10V/ 5mA	28V/50mA	
	-Y (YELLOW)	28	28V/25mA	12V/ 5mA	29V/26mA	
	-Y (YELLOW)	48	48V/12mA	20V/ 3.5mA	50V/12.5mA	
	-Y (YELLOW)	110	110Vac/ 10RMS	50Vac/ 3.5RMS	120Vac/ 11RMS	
	-G (GREEN)	220	220Vac/ 4RMS	110Vac/ 2RMS	240Vac/ 4.5RMS	

For AC operation, insert AC after the Electrical Assembly, not required for 110Vac or 220Vac (MS400-A48AC-4CL1). For 110Vdc to 220Vdc, insert DC after the Electrical Assembly (MS400-R110DC-4CL1).

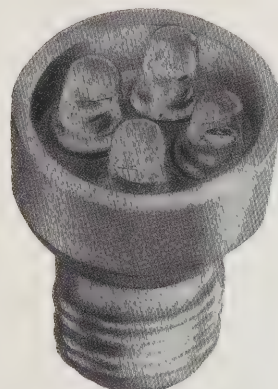
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS400-Y24-4CL1 (T-3 $\frac{1}{4}$ Miniature Screw Base, YELLOW, Four T-1 LED Cluster, 24Vdc at 30mA)



Available With Center Cathode



All dimensions are in inches(mm)

Tolerances: .xx^o(.x) +/- .025^o(.63), .xxx^o(.xx) +/- .010^o(.25)

Specifications are subject to change without notice.

MS400, MS400C

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-3¼ MINIATURE LAMP

SEVEN T-1 LED CLUSTER, SCREW BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 110 Volts AC or DC

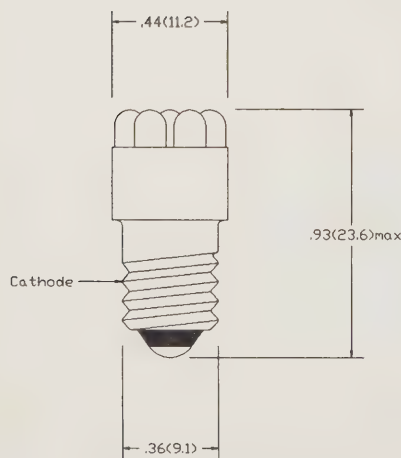
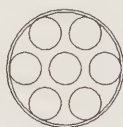
Model	Color	Electrical Assembly ⁽¹⁾				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MS400 (Center Anode)	-R (RED)	6	6V/95mA	4.5V/30mA	7V/125mA	-7CL1
		12	12V/60mA	5V/10mA	14/72mA	
MS400C (Center Cathode)	-A (AMBER)	24	24V/24mA Red 24V/28mA Others	18V/11mA	26V/28mA Red 26V/34mA Others	
		28	28V/17mA	18V/5.5mA	30V/20mA	
	-AY (AMBER/ YELLOW)	48	48V/12.5mA	20V/2mA	50V/13.5mA	
		60	60V/17mA	20V/2mA	65V/20mA	
	-Y (YELLOW)	110	110Vac/ 4.5RMS Red 8RMS Others	50Vac/ 1.5RMS Red 3RMS Others	120Vac/ 5RMS Red 9.5RMS Others	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS400-R60AC-7CL1). For 110Vdc, insert DC after the Electrical Assembly (MS400-G110DC-7CL1).

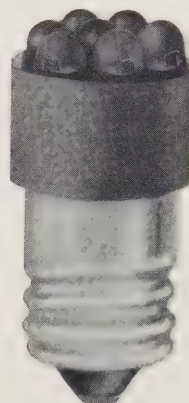
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS400-R12-7CL1 (T-3¼ Miniature Screw Base, RED, Seven T-1 LED Cluster, 12Vdc at 60mA)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

MS400, MS400C



Data Display Products

T-3 $\frac{1}{4}$ MINIATURE LAMP

FOUR T-1 $\frac{3}{4}$ DUAL CHIP CLUSTER, SCREW BASE

Red, Orange, Amber or Green

Dual Chip LEDs

12 to 110 Volts AC or DC

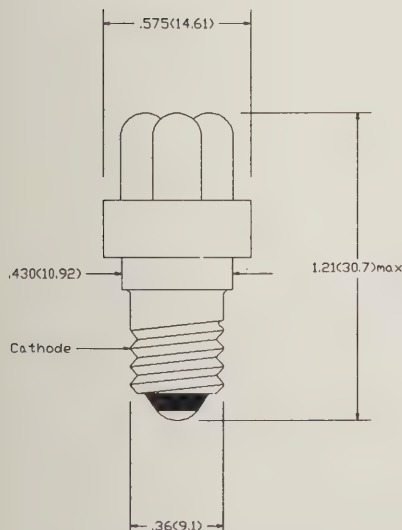
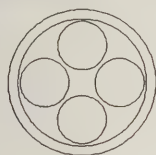
Model	Color	Electrical Assembly ⁽¹⁾				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MS400 (Center Anode)	-R (RED)	12	12V/37mA	10V/20mA	14V/60mA	-4CL2-2
		15	15V/18mA	14V/11mA	16V/22mA	
MS400C (Center Cathode)	-O (ORANGE)	24	24V/21mA	18V/ 4mA	28V/30mA	
		28	28V/21mA	20V/ 6.5mA	30V/25mA	
		48	48V/20mA	25V/ 5.5mA	52V/24mA	
		60	60V/14.5mA	40V/ 8mA	65V/16mA	
		110	110Vac/ 10RMS	50Vac/ 5RMS	120Vac/ 11RMS	
	-A (AMBER)					
	-G (GREEN)					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS400-G60AC-4CL2-2). For 110Vdc, insert DC after the Electrical Assembly (MS400-O110DC-4CL2-2).

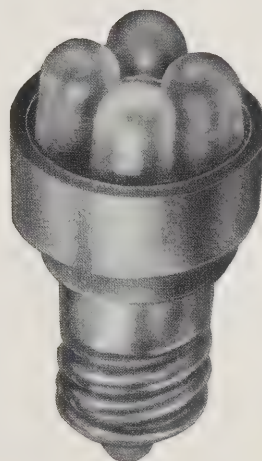
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS400-A12-4CL2-2 (T-3 $\frac{1}{4}$ Miniature Screw Base, AMBER, Four T-1 $\frac{3}{4}$ Dual Chip LED Cluster, 12Vdc at 37mA)



Available With Center Cathode



All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.

MS400, MS400C

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-3¹/₄ MINIATURE LAMP

BUBBLE LIGHT, SCREW BASE

Red, Amber or Green

20mm LED Diameter

5 to 110 Volts AC or DC

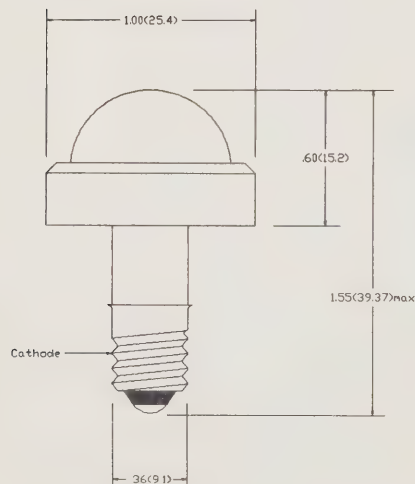
Model	Color		Electrical Assembly ^[1]				Lens ^[2]
	Peak Wave-length (nm)	Luminous Intensity Min/Typ ^[3] (mcd)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MS800 (Center Anode)	-635 (RED)	25/42	-5V100	5V/120mA (Red) 5V/100mA (others)	3.5V/55mA	5.6V/140 (Red) 5.6V/125 (others)	-R Red
	-585 (AMBER)	25/37	-6V55	6V/55mA	4.8V/20mA	6.5V/75mA	-A Amber
MS800C (Center Cathode)	-565 (GREEN)	25/42	-12V40	12V/37mA	10V/25mA	14V/50mA	-G Green
			-15V20	15V/20mA	14V/15mA	16V/30mA	-W White
			-24V20	24V/17mA	18V/8mA	26V/20mA	
			-28V20	28V/20mA	21V/10mA	32V/26mA	
			-60V12	60V/12mA	40V/7mA	70V/15mA	
			-110V6	110Vac/ 6.5RMS	50Vac/ 2.5RMS	130Vac/ 7.8RMS	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS800-585-60V12AC-W). For 5V100AC, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MS800-635-110V6DC-R).
2. The LED color must match the lens color, a White lens may be selected with any LED color.
3. Luminous intensity measured at 20mA.

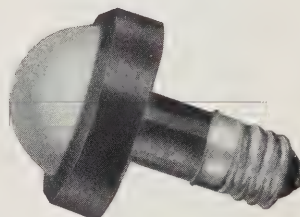
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS800-585-15V20-A (T-3¹/₄ Miniature Screw Base Bubble Light, AMBER, 15Vdc at 20mA, Amber Lens)



Available With Center Cathode



All dimensions are in inches(mm)

Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)

Specifications are subject to change without notice.

MS800



Data Display Products

T-3¹/₄ MINIATURE LAMP

BUBBLE LIGHT, BAYONET BASE

Red, Amber or Green

20mm LED Diameter

5 to 110 Volts AC or DC

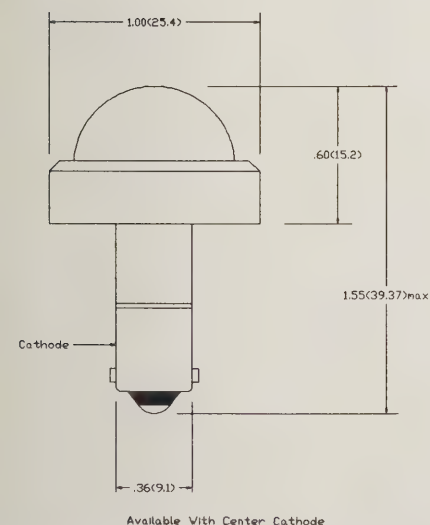
Model	Color		Electrical Assembly ^[1]				Lens ^[2]
	Peak Wave-length (nm)	Luminous Intensity Min/Typ ^[3] (mcd)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MB800 (Center Anode)	-635 (RED)	25/42	-5V100	5V/120mA (Red) 5V/100mA (others)	3.5V/55mA	5.6V/140 (Red) 5.6V/125 (others)	-R Red
	-585 (AMBER)	25/37	-6V55	6V/55mA	4.8V/20mA	6.5V/75mA	-A Amber
MB800C (Center Cathode)	-565 (GREEN)	25/42	-12V40	12V/37mA	10V/25mA	14V/50mA	-G Green
			-15V20	15V/20mA	14V/15mA	16V/30mA	-W White
			-24V20	24V/17mA	18V/8mA	26V/20mA	
			-28V20	28V/20mA	21V/10mA	32V/26mA	
			-60V12	60V/12mA	40V/7mA	70V/15mA	
			-110V6	110Vac/ 6.5RMS	50Vac/ 2.5RMS	130Vac/ 7.8RMS	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB800-635-24V20AC-R). For 5V100AC, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (MB800-585-110V6DC-A).
2. The LED color must match the lens color, a White lens may be selected with any LED color.
3. Luminous intensity measured at 20mA.

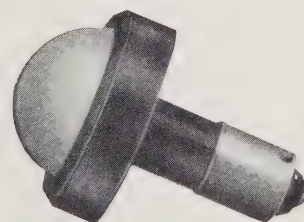
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **MB800-635-12V40-R** (T-3¹/₄ Miniature Bayonet Base Bubble Light, RED, 12Vdc at 37mA, Red Lens)



MB800, MB800C



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

T-4¹/₄ CANDELABRA LAMP

SEVEN T-1 LED CLUSTER, BAYONET BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 110 Volts AC or DC

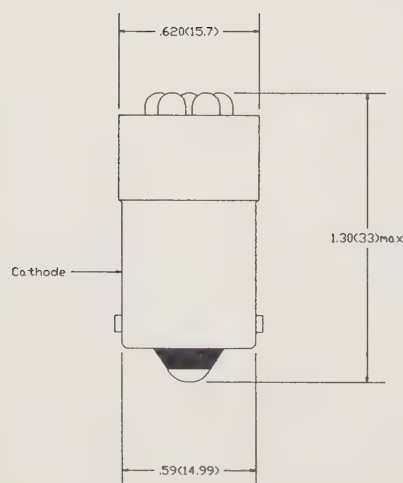
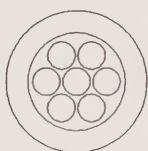
Model	Color		Electrical Assembly ^[1]			Cluster
			Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MB500 (Center Anode)	-R (RED)	6	6V/95mA	4.5V/30mA	7V/125mA	-7CL1
		12	12V/60mA	5V/10mA	14/72mA	
MB500C (Center Cathode)	-A (AMBER)	24	24V/24mA Red 24V/28mA Others	18V/11mA	26V/28mA Red 26V/34mA Others	
		28	28V/17mA	18V/5.5mA	30V/20mA	
	-AY (AMBER/YELLOW)	48	48V/12.5mA	20V/2mA	50V/13.5mA	
		60	60V/17mA	20V/2mA	65V/20mA	
	-Y (YELLOW)	110	110Vac/ 4.5RMS Red 8RMS Others	50Vac/ 1.5RMS Red 3RMS Others	120Vac/ 5RMS Red 9.5RMS Others	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB500-R24AC-7CL1). For 110Vdc, insert DC after the Electrical Assembly (MB500-R110DC-7CL1).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MB500-Y28-7CL1 (T-4¹/₄ Candelabra Bayonet Base, YELLOW, Seven T-1 LED Cluster, 28Vdc AT 17mA)



All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.

MB500, MB500C



Data Display Products

T-4¹/₄ CANDELABRA LAMP

FOUR T-1³/₄ DUAL CHIP CLUSTER, BAYONET BASE

Red, Orange, Amber or Green

Dual Chip LEDs

12 to 110 Volts AC or DC

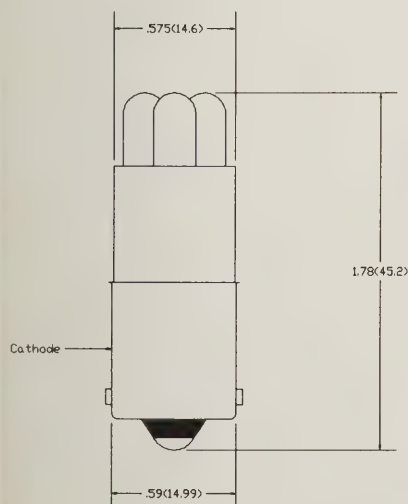
Model	Color	Electrical Assembly ⁽¹⁾				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MB500 (Center Anode)	-R (RED)	12	12V/37mA	10V/20mA	14V/60mA	-4CL2-2
		15	15V/18mA	14V/11mA	16V/22mA	
MB500C (Center Cathode)	-O (ORANGE)	24	24V/21mA	18V/ 4mA	28V/30mA	
		28	28V/21mA	20V/ 6.5mA	30V/25mA	
		48	48V/20mA	25V/ 5.5mA	52V/24mA	
		60	60V/14.5mA	40V/ 8mA	65V/16mA	
		110	110Vac/ 10RMS	50Vac/ 5RMS	120Vac/ 11RMS	
	-A (AMBER)					
	-G (GREEN)					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MB500-G15AC-4CL2-2). For 110Vdc, insert DC after the Electrical Assembly (MB500-O110DC-4CL2-2).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **MB500-A28-4CL2-2** (T-4¹/₄ Candelabra Bayonet Base, AMBER, Four T-1³/₄ Dual Chip LED Cluster, 28Vdc at 21mA)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

MB500, MB500C

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-4¹/₄ CANDELABRA LAMP

SEVEN T-1 LED CLUSTER, SCREW BASE

Red, Amber, Amber/Yellow, Yellow or Green

P Series LEDs, ■ Section

6 to 110 Volts AC or DC

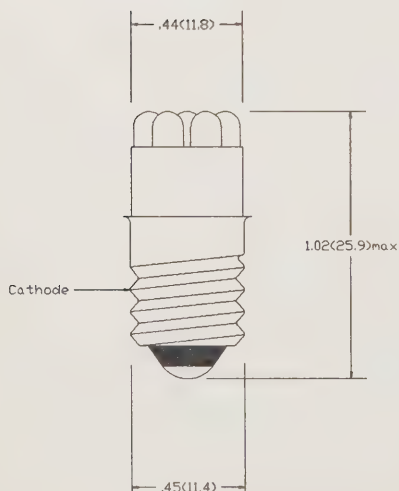
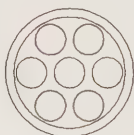
Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
MS500 (Center Anode)	-R (RED)	6	6V/95mA	4.5V/30mA	7V/125mA	-7CL1
		12	12V/60mA	5V/10mA	14/72mA	
MS500C (Center Cathode)	-A (AMBER)	24	24V/24mA Red 24V/28mA Others	18V/11mA	26V/28mA Red 26V/34mA Others	
	-AY (AMBER/YELLOW)	28	28V/17mA	18V/5.5mA	30V/20mA	
		48	48V/12.5mA	20V/2mA	50V/13.5mA	
	-Y (YELLOW)	60	60V/17mA	20V/2mA	65V/20mA	
	-G (GREEN)	110	110Vac/ 4.5RMS Red 8RMS Others	50Vac/ 1.5RMS Red 3RMS Others	120Vac/ 5RMS Red 9.5RMS Others	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS500-Y60AC-7CL1). For 110Vdc, insert DC after the Electrical Assembly (MS500-A110DC-7CL1).

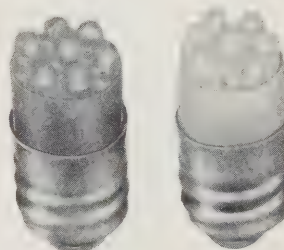
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS500-G110-7CL1 (T-4¹/₄ Candelabra Screw Base, GREEN, Seven T-1 LED Cluster, 110Vac)



Available With Center Cathode



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

MS500, MS500C

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-4¹/₄ CANDELABRA LAMP

FOUR T-1³/₄ DUAL CHIP CLUSTER, SCREW BASE

Red, Orange, Amber or Green

Dual Chip LEDs

12 to 110 Volts AC or DC

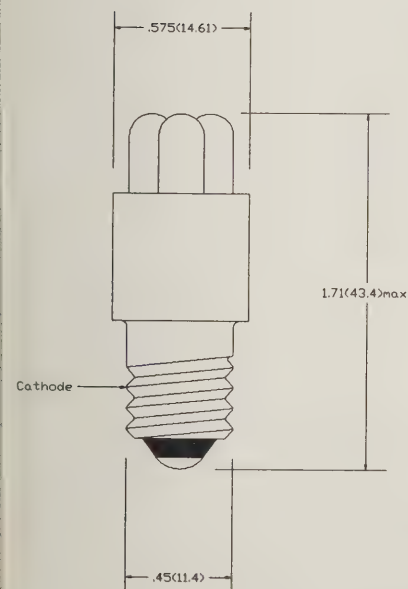
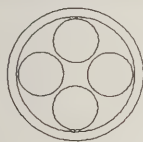
Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
MS500 (Center Anode)	-R (RED)	12	12V/37mA	10V/20mA	14V/60mA	-4CL2-2
		15	15V/18mA	14V/11mA	16V/22mA	
MS500C (Center Cathode)	-O (ORANGE)	24	24V/21mA	18V/ 4mA	28V/30mA	
		28	28V/21mA	20V/ 6.5mA	30V/25mA	
		48	48V/20mA	25V/ 5.5mA	52V/24mA	
		60	60V/14.5mA	40V/ 8mA	65V/16mA	
		110	110Vac/ 10RMS	50Vac/ 5RMS	120Vac/ 11RMS	
	-A (AMBER)					
	-G (GREEN)					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (MS500-R12AC-4CL2-2). For 110Vdc, insert DC after the Electrical Assembly (MS500-G110DC-4CL2-2).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS500-A28-4CL2-2 (T-4¹/₄ Candelabra Screw Base, AMBER, Four T-1³/₄ Dual Chip LED Cluster, 28Vdc at 21mA)



Available With Center Cathode

All dimensions are in inches(mm)

Tolerances: .xx"(.x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)

Specifications are subject to change without notice.

MS500, MS500C

445 So. Douglas Street, El Segundo, CA 90245-4630

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FAX (213) 640-7639



Data Display Products

T-4¹/₄ MEDIUM LAMP

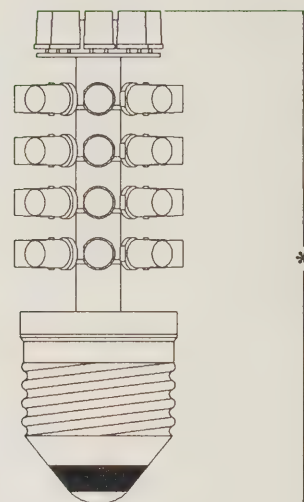
TIERED, SCREW BASE

Red, Amber, Yellow or Green

E Series LEDs, ■ Section

110 Volts AC Operation

Model	Color	Electrical Assembly				Tiers
			Design Voltage	Min Voltage	Max Voltage	
MS900	-R (RED)	110	110Vac	50Vac	145Vac	-2T
	-A (AMBER)					-3T
						-4T
	-Y (YELLOW)					-5T
						-6T
	-G (GREEN)					-7T
						-8T
						-9T
						-10T
						-11T
						-12T

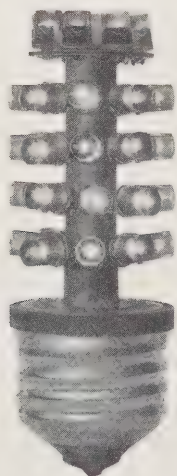


MS900

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: MS900-R110-5T (T-4¹/₄ Medium Screw Base, RED, 110Vac, 5 Tiers)



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

# of Tiers	*(Height)
3	2.58(65.5)
4	2.95(74.9)
5	3.32(84.3)
6	3.69(93.7)
7	4.06(103.1)
8	4.42(112.3)
9	4.79(121.7)
10	5.16(131.1)
11	5.53(140.5)
12	5.90(149.9)



T-4¹/₄ CANDELABRA LAMP

Data Display Products **T-1 LED CLUSTER, DOUBLE CONTACT BAYONET BASE**

Red, Amber, Amber/Yellow, Yellow or Green

Seven P Series LEDs, ■ Section

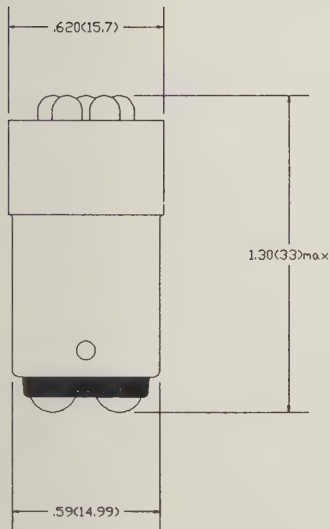
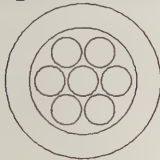
6 to 110 Volts AC or DC

Model	Color	Electrical Assembly ^[1]				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
DCB500	-R (RED)	6	6V/95mA	4.5V/30mA	7V/125mA	-7CL1
		12	12V/60mA	5V/10mA	14/72mA	
	-A (AMBER)	24	24V/24mA Red 24V/28mA Others	18V/11mA	26V/28mA Red 26V/34mA Others	
	-AY (AMBER/YELLOW)	28	28V/17mA	18V/5.5mA	30V/20mA	
		48	48V/12.5mA	20V/2mA	50V/13.5mA	
	-Y (YELLOW)	60	60V/17mA	20V/2mA	65V/20mA	
	-G (GREEN)	110	110Vac/ 4.5RMS Red 8RMS Others	50Vac/ 1.5RMS Red 3RMS Others	120Vac/ 5RMS Red 9.5RMS Others	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (DCB500-AY24AC-7CL1). For 110Vdc, insert DC after the Electrical Assembly.

TO ORDER:
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: DCB500-Y60-7CL1 (T-4¹/₄ Double Contact Bayonet Base, YELLOW, Seven T-1 LED Cluster, 60Vdc at 17mA)



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025(.63), .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.



Data Display Products

T-4¹/₄ CANDELABRA LAMP

T-1³/₄ LED CLUSTER, DOUBLE CONTACT BAYONET BASE

Red, Orange, Amber or Green

Four Dual Chip LEDs

12 to 110 Volts AC or DC

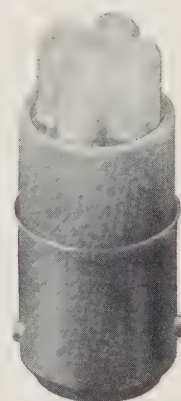
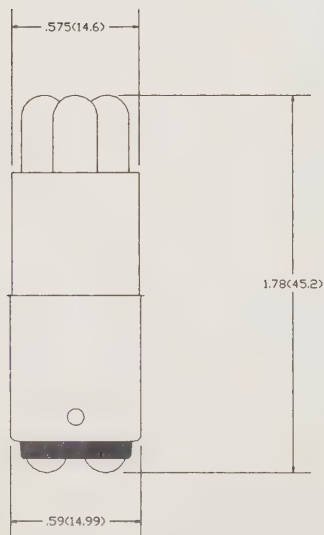
Model	Color	Electrical Assembly ⁽¹⁾				Cluster
			Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
DCB500	-R (RED)	12	12V/37mA	10V/20mA	14V/60mA	-4CL2-2
		15	15V/18mA	14V/11mA	16V/22mA	
	-O (ORANGE)	24	24V/21mA	18V/ 4mA	28V/30mA	
		28	28V/21mA	20V/ 6.5mA	30V/25mA	
	-A (AMBER)	48	48V/20mA	25V/ 5.5mA	52V/24mA	
		60	60V/14.5mA	40V/ 8mA	65V/16mA	
	-G (GREEN)	110	110Vac/ 10RMS	50Vac/ 5RMS	120Vac/ 11RMS	

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (DCB500-R48AC-4CL2-2). For 110Vdc, insert DC after the Electrical Assembly (DCB500-A110DC-4CL2-2).

TO ORDER:

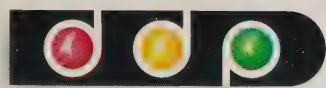
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: DCB500-O15-4CL2-2 (T-4¹/₄ Double Contact Bayonet Base, ORANGE, Four T-1³/₄ Dual Chip LED Cluster, 15Vdc at 18mA)



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/-.025(.63), .xxx(.xx) +/-.010(.25)
Specifications are subject to change without notice.

DCB500



Data Display Products

BI-POLAR LAMPS MULTI-CHIP AND LED CLUSTERS

Functions with Positive or Negative Center Polarity

Available in Sub-Miniature, Miniature and Candelabra Bases

12 to 60 Volts DC

The Bi-Polar option is available on the models listed below, minimum standard voltage required is 12Vdc, for lower voltages, contact your local representative or the factory:

Model	Size, Style	LED Configuration	Page Number
MB200	T-1¼, Sub-Miniature Bayonet	Multi-Chip	24
MF200	T-1¼, Sub-Miniature Flange	Multi-Chip	30
MB400	T-3¼, Miniature Bayonet	Multi-Chip	41
MB401	T-3¼, Miniature Bayonet	Multi-Chip	44
MB400	T-3¼, Miniature Bayonet	Seven T-1 LED Cluster	46
MB400	T-3¼, Miniature Bayonet	Four Dual-Chip Cluster	47
MF400	T-3¼, Miniature Flange	Multi-Chip	50
MF400	T-3¼, Miniature Flange	Seven T-1 LED Cluster	52
MF400	T-3¼, Miniature Flange	Four Dual-Chip Cluster	53
MS400	T-3¼, Miniature Screw	Multi-Chip	56
MS400	T-3¼, Miniature Screw	Seven T-1 LED Cluster	58
MS400	T-3¼, Miniature Screw	Four Dual-Chip Cluster	59
MS800	T-3¼, Miniature Screw	Bubble Light	60
MB800	T-3¼, Miniature Bayonet	Bubble Light	61
MB500	T-4¼ Candelabra Bayonet	Seven T-1 LED Cluster	62
MB500	T-4¼ Candelabra Bayonet	Four Dual-Chip Cluster	63
MS500	T-4¼ Candelabra Screw	Seven T-1 LED Cluster	64
MS500	T-4¼ Candelabra Screw	Four Dual-Chip Cluster	65



TO ORDER:

Turn to the page number for the required model, build a part number according to the instructions. For Bi-Polar, place a **-BP** at the end of the selected part number.

Example: **MF200-R28-6-BP** (T-1¼ Sub-Miniature Flange from page 30, RED, 6 Chip Multi-Chip, 28Vdc, Bi-Polar)



T-1 SLIDE BASED LEDs

Data Display Products

T4.6

Red, Amber, Amber/Yellow, Yellow or Green

Industry Standard Slide Base

2 to 28 Volts DC Operation

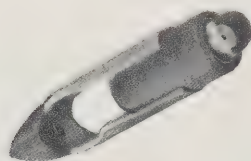
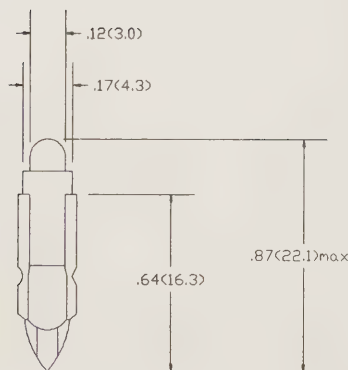
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly				
					Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	Voltage Range (Vac)
46SB	-B	C (Non-Diffused)	R (RED, All Series)	2^[1]	---	---	---	---
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U	W (Water Clear, E & U Series Only)	AY (AMBER/YELLOW, P Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	-P (Non-Diffused Only)			12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
			G (GREEN, All Series)					

1. External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 46SB-PCAY2 (T4.6 Slide Base, P Series, Non-Diffused AMBER/YELLOW, External resistor required.)
46SB-UWA12H (T4.6 Slide Base, U Series, Water Clear AMBER, 12Vdc at 27mA)



All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.

46SB



T-1³/₄ SLIDE BASED LEDs

LOW PROFILE, T5.5K

Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 60 Volts AC or DC

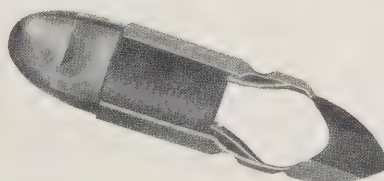
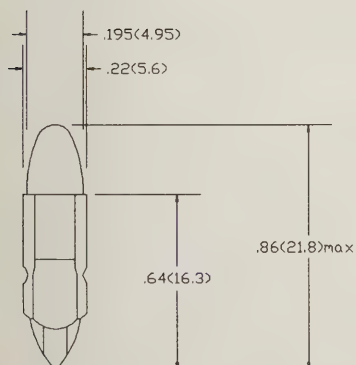
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
55KSB	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	----	----	----	---
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
			Y (YELLOW, E Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
			G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
				48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---

- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (55KSB-ER48HD).
- External resistor required.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **55KSB-BCA12H** (T5.5K Slide Base, B Series, Non-Diffused AMBER, 12Vdc at 27mA)
55KSB-EY2 (T5.5K Slide Base, E Series, Diffused YELLOW, External resistor required.)



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.

55KSB



Data Display Products

T-1³/₄ SLIDE BASED LEDs LOW PROFILE, NARROW BASE SHORT NO. 5

Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 110 Volts AC or DC, 220 Vac Only

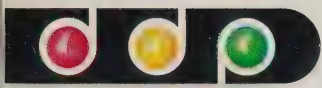
Model	Series Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]					
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)	
5TSB	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---	
	-E	For Diffused, Omit Letter	A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3	
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5	
				Y (YELLOW, E Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
					12H	12V/27mA	5V/8mA	15V/36mA	5-15
				G (GREEN, All Series)	24	24V/9mA	20V/7.5mA	30V/12mA	---
					24H	24V/17mA	15V/10mA	28V/20mA	---
					28	28V/11mA	15V/5.5mA	30V/12mA	---
					28H	28V/16.5mA	15V/8mA	30V/18mA	---
					48	48V/10mA	30V/6mA	50V/10.2mA	---
					48H	48V/15mA	30V/9mA	50V/16mA	---
					60	60V/7mA	40V/4.5mA	65V/8mA	---
					60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[3]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130	
				110H ^[3]	110Vac 3RMS	---	130Vac/ 3.9RMS	130	
				220 ^[3]	220Vac 1RMS	---	250Vac/ 1.4RMS	250	

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (5TSB-BCA24HD). For 110Vdc insert DC after the Electrical Assembly (5TSB-A110DC), 110H and 220 are available in Vac only.
2. External resistor required.
3. For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (5TSB-X110-C, 5TSB-X110, 5TSB-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

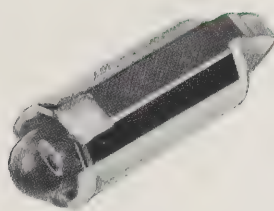
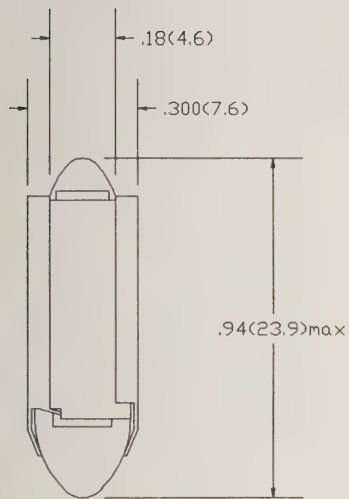
Example: 5TSB-BCR60H (Standard Telephone Narrow Base Short No.5, B Series, Non-Diffused RED, 60Vdc at 12mA)
5TSB-EG48 (Standard Telephone Narrow Base Short No. 5, E Series, Diffused GREEN, 48Vdc at 10mA)



Data Display Products

T-1³/₄ SLIDE BASED LEDs

LOW PROFILE, NARROW BASE SHORT NO. 5



5TSB

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(.xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SLIDE BASED LEDs

ANSI NO. 1 & T6.8

Red, Amber, Yellow or Green

Industry Standard Slide Bases

2 to 110 Volts AC or DC, 220Vac Only

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
1SB	-B -E -U	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series)	2 ^[2]	----	----	----	---
				5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color, Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	A (AMBER, All Series)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
			Y (YELLOW, E & U Series Only)	24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
			G (GREEN, All Series)	48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	----	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	----	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	----	250Vac/ 1.4RMS	250

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater. (1SB-UWG28HD). For 110Vdc insert DC after the Electrical Assembly (1SB-R110DC), 110H and 220 are available in Vac only.

2. External resistor required.

3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).

4. Contact factory for Electrical Assembly data.

5. For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (1SB-X110-C, 1SB-X110, 1SB-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

T-1 $\frac{3}{4}$ SLIDE BASED LEDs

ANSI NO. 1 & T6.8

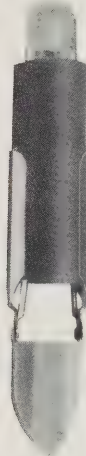
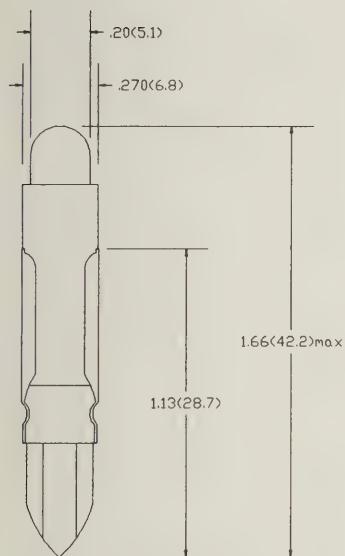


TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 1SB-EG48H (ANSI No. 1 Slide Base, E Series, Diffused GREEN, 48Vdc at 15mA)

1SB-R2K2 (ANSI No. 1 Slide Base, Hi-Intensity RED, External resistor required.)



1SB

All dimensions are in inches(mm)

Tolerances: .xx(.x) +/- .025"(.63), .xxx(.xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SLIDE BASED LEDs

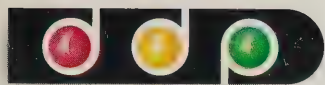
SPECIAL ANSI NO. 1, 8 & T6.8

Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 110 Volts AC or DC, 220Vac Only

Model	Series M - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
1SBL	-M -B -E -U Series Below Do Not Require Encapsulation or Color Code:	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series)	2 ^[2]	----	----	----	---
				5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
				12	12V/18mA	5V/5mA	15V/23mA	5-15
	-XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color, Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	A (AMBER, All Series)	12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
				48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	----	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	----	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	----	250Vac/ 1.4RMS	250
			Y (YELLOW, E & U Series Only)					
			G (GREEN, All Series)					



Data Display Products

T-1³/₄ SLIDE BASED LEDs

SPECIAL ANSI NO. 1, 8 & T6.8

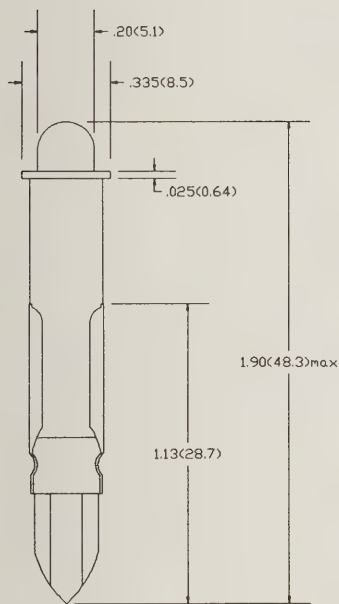


1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (1SBL-ECR48D). For 110Vdc insert DC after the Electrical Assembly (1SBL-ER110DC), 110H and 220 are available in Vac only.
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.
5. For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (1SBL-X110-C, 1SBL-X110, 1SBL-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 1SBL-EY60H (Special ANSI No. 1 Slide Base, E Series, Diffused YELLOW, 60Vdc at 12mA)
1SBL-LRG2 (Special ANSI No. 1 Slide Base, Bi-Color RED/GRN, External resistor required.)



1SBL

All dimensions are in inches(mm)

Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, ANSI NO. 1 & T6.8

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

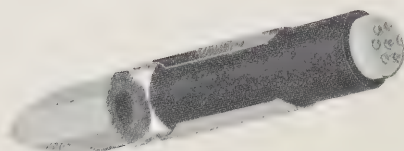
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
1SB	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
				6	6V/55mA	4.8V/20mA	6.4V/65mA	
	-ER (Ultra RED)	150/200	660	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (1SB-A60AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (1SB-R110DC-6).
2. Luminous intensity measured at 20mA.

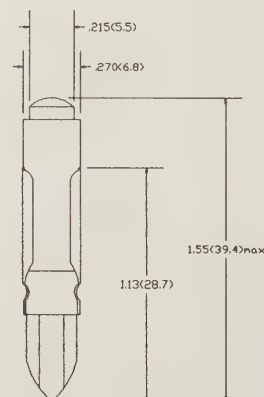
TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 1SB-R28-6 (ANSI No. 1 Slide Base, RED, 6 Chip Multi-Chip, 28Vdc at 18mA)



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.



1SB, Multi-Chip



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, SPECIAL ANSI NO. 1, 8 & T6.8

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

Model	Color				Electrical Assembly ^[1]			Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
1SBL	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
	-R (RED)	25/50	630	12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-O (ORANGE)	40/60	610	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-A (AMBER)	28/40	585	60	60V/16mA	40V/10mA	64V/18mA	
	-G (GREEN)	40/60	565	110	110Vac/3RMS	50Vac/1RMS	130Vac/3.5RMS	
	-PG (Pure GREEN)	12/20	555					

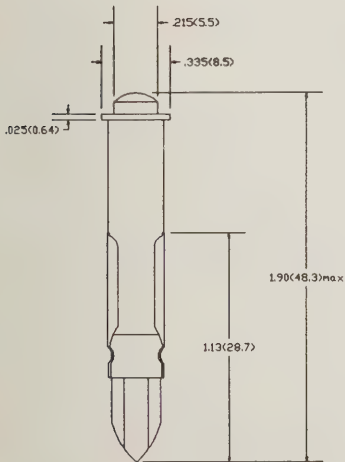


1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (1SBL-R12AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (1SBL-O110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

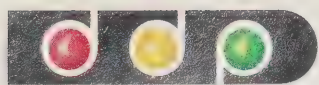
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 1SBL-PG12-6 (Special ANSI No. 1 Slide Base, Pure GREEN, 6 Chip Multi-Chip, 12Vdc at 37mA)



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.

1SBL, Multi-Chip



Data Display Products

T-1³/₄ SLIDE BASED LEDs

ANSI NO. 2

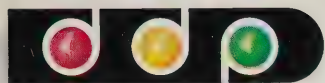
Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 110 Volts AC or DC, 220Vac Only

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
2SB	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	----	----	----	---
	-E			5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U			5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	A (AMBER, All Series)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
		Y (YELLOW, E & U Series Only)	Y (YELLOW, E & U Series Only)	24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
				48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	----	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	----	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	----	250Vac/ 1.4RMS	250

- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (2SB-UWR60HD). For 110Vdc insert DC after the Electrical Assembly (2SB-R110DC), 110H and 220 are available in Vac only.
- External resistor required.
- Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
- Contact factory for Electrical Assembly data.
- For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (2SB-X110-C, 2SB-X110, 2SB-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

T-1³/₄ SLIDE BASED LEDs

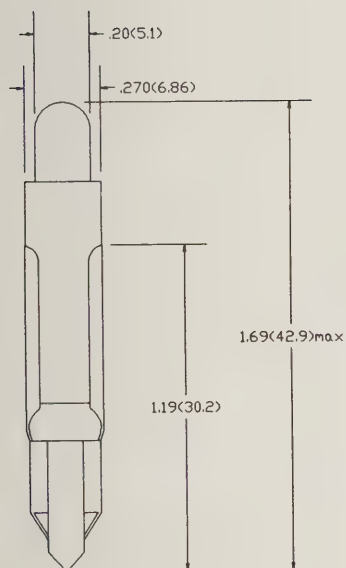
ANSI NO. 2



TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 2SB-BA5H (ANSI No. 2 Slide Base, B Series, Diffused AMBER, 5Vdc at 27mA)
2SB-R3K24H (ANSI No. 2 Slide Base, Hi-Intensity RED, 24Vdc at 17mA)



2SB

All dimensions are in inches(mm)

Tolerances: .xx(x) +/- .025(.63), .xxx(.xx) +/- .010(.25)

Specifications are subject to change without notice.



Data Display Products

T-1 $\frac{3}{4}$ SLIDE BASED LEDs

SPECIAL ANSI NO. 2

Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 110 Volts AC or DC, 220Vac Only

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
2SBL	-B -E -U	C (Non-Diffused) For Diffused, Omit Letter	R (RED, All Series)	2 ^[2]	---	---	---	---
				5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
				5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	A (AMBER, All Series)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
			Y (YELLOW, E & U Series Only)	24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
			G (GREEN, All Series)	48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	---	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	---	250Vac/ 1.4RMS	250

- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (2SBL-BA24HD). For 110Vdc insert DC after the Electrical Assembly (2SBL-O110DC), 110H and 220 are available in Vac only.
- External resistor required.
- Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
- Contact factory for Electrical Assembly data.
- For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (2SBL-X110-C, 2SBL-X110, 2SBL-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



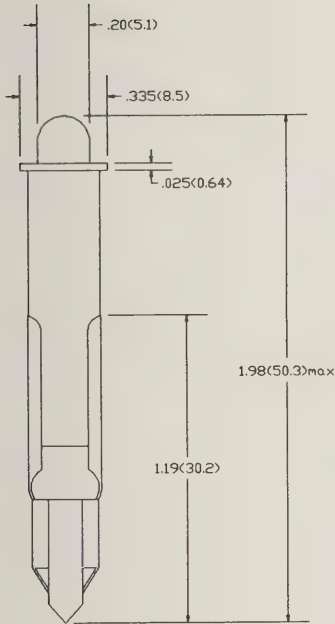
Data Display Products

T-1³/₄ SLIDE BASED LEDs
SPECIAL ANSI NO. 2



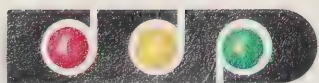
TO ORDER:
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 2SBL-ER5 (Special ANSI No. 2 Slide Base, E Series, Diffused RED, 5Vdc at 17mA)
2SBL-LRG48H (Special ANSI No. 2 Slide Base, Bi-Color RED/GRN, 48Vdc at 15mA)



2SBL

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, ANSI NO. 2

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

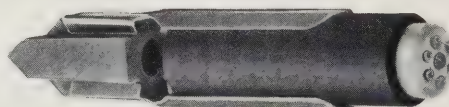
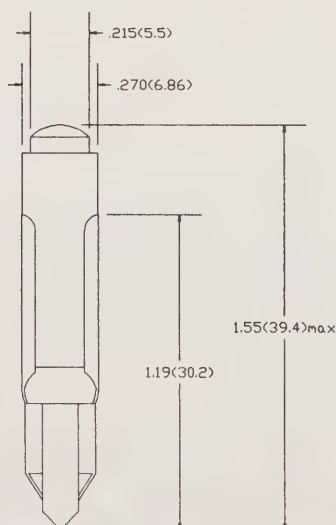
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nM)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
2SB	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
-PG (Pure GREEN)	12/20	555						

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (2SB-R28AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (2SB-O110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 2SB-O60-6 (ANSI No. 2 Slide Base, ORANGE, 6 Chip Multi-Chip, 60Vdc at 16mA)



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.



2SB, Multi-Chip

445 So. Douglas Street, El Segundo, CA 90245-4630



(800) 421-6815 (213) 640-0442



FAX (213) 640-7639



T-1³/₄ SLIDE BASED LEDs

Data Display Products

MULTI-CHIP, SPECIAL ANSI NO. 2

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

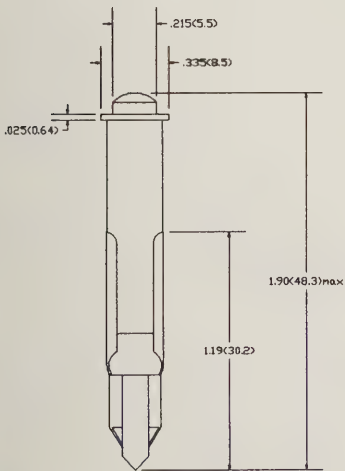
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/Current	Min Voltage/Current	Max Voltage/Current	
2SBL	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
				24	24V/22mA	18V/11mA	25V/24mA	
	-O (ORANGE)	40/60	610	28	28V/18mA	21V/11mA	30V/20mA	
	-A (AMBER)	28/40	585	60	60V/16mA	40V/10mA	64V/18mA	
				110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (2SBL-G24AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (2SBL-R110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 2SBL-PG110-6 (Special ANSI No. 2 Slide Base, Pure GREEN, 6 Chip Multi-Chip, 110Vac)



All dimensions are in inches(mm)
Tolerances: .xx*(x)+/-0.025*(.63), .xxx*(.xx)+/-0.010*(.25)
Specifications are subject to change without notice.



Data Display Products

T-1^{3/4} SLIDE BASED LEDs

ANSI NO. 5

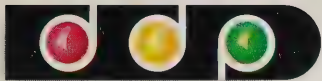
Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 110 Volts AC or DC, 220Vac Only

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
5SB	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E			5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U			5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG (Bi-Color Red /Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	A (AMBER, All Series)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
			Y (YELLOW, E & U Series Only)	24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	---
			G (GREEN, All Series)	48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
				60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
				110 ^[5]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	---	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	---	250Vac/ 1.4RMS	250

- For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (5SB-BCR28D). For 110Vdc insert DC after the Electrical Assembly (5SB-A110DC), 110H and 220 are available in Vac only.
- External resistor required.
- Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
- Contact factory for Electrical Assembly data.
- For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (5SB-X110-C, 5SB-X110, 5SB-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

T-1³/₄ SLIDE BASED LEDs

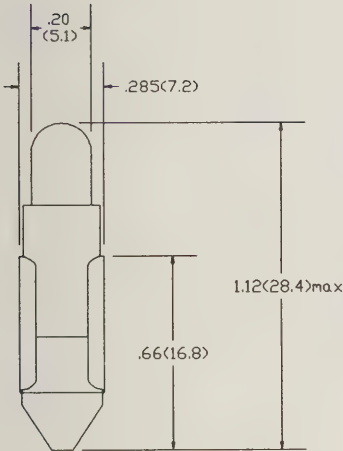
ANSI NO. 5



TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

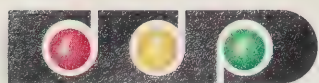
Example: 5SB-UCY12H (ANSI No. 5 Slide Base, U Series, Non-Diffused YELLOW, 12Vdc at 27mA)
5SB-EWA24H (ANSI No. 5 Slide Base, E Series, Water Clear AMBER, 24Vdc at 17mA)



5SB

All dimensions are in inches(mm)
Tolerances: .xx"(x) +/- .025"(.63), .xxx"(xx) +/- .010"(.25)
Specifications are subject to change without notice.





Data Display Products

T-1³/₄ SLIDE BASED LEDs

SCANDIA, SWEDISH

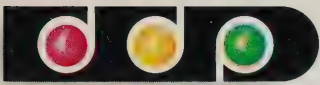
Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
55SSB	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E		A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U	For Diffused, Omit Letter	Y (YELLOW, E & U Series Only)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code: -XLP ^{[3] [4]} (Low Power, Diffused Only) -X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only) -LRG Bi-Color Red/ Grn, Milky Diffused Only) -ERB ^[4] (Blinking Red, Diffused Only) -R2K (Hi-Intensity, Water Clear Red Only) -R3K (Hi-Intensity, Water Clear Red Only)	W (Water Clear, E & U Series Only)	G (GREEN, All Series)	12	12V/18mA	5V/5mA	15V/23mA	5-15
				12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
				28H	28V/16.5mA	15V/8mA	30V/18mA	

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (55SSB-BA24HD).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.



T-1³/₄ SLIDE BASED LEDs

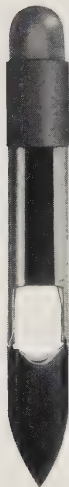
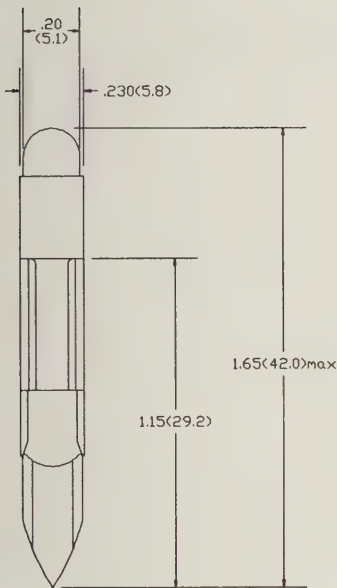
Data Display Products

SCANDIA, SWEDISH



TO ORDER:
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: **55SSB-BCR24HD** (Scandia, Swedish Slide Base, B Series, Non-Diffused RED, 24Vac)
55SSB-GLP2 (Scandia, Swedish Slide Base, Low Power GREEN, External resistor required.)



55SSB

All dimensions are in inches(mm)
Tolerances: .xx*(x)+/-0.025*(.63), .xxx*(xx)+/-0.010*(.25)
Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, ANSI NO. 5

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

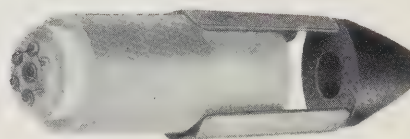
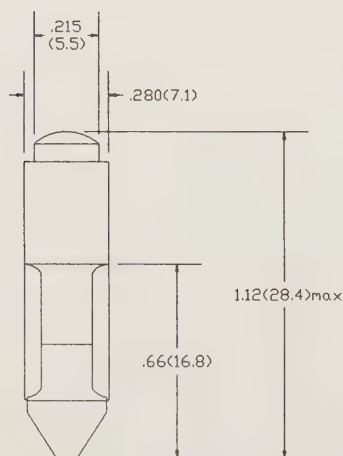
Model	Color			Electrical Assembly ^[1]				Multi-Chip
		Luminous Intensity Min/Typ ^[2] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
5SB	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
-PG (Pure GREEN)	12/20	555						

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (5SB-O12AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (5SB-G110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 5SB-G28-6 (ANSI No. 5 Slide Base, GREEN, 6 Chip Multi-Chip, 28Vdc at 18mA)



All dimensions are in inches(mm)
Tolerances: .xx(.x) +/- .025(.63), .xxx(.xx) +/- .010(.25)
Specifications are subject to change without notice.

5SB, Multi-Chip



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, SKANDIA, SWEDISH

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 28 Volts DC Operation

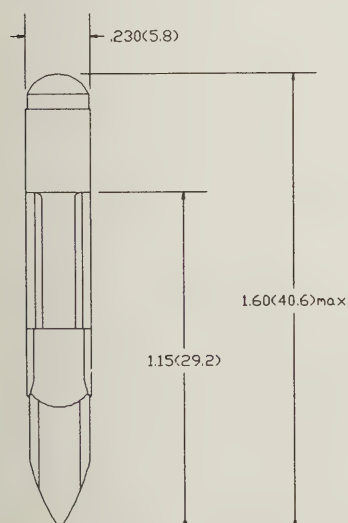
Model	Color			Electrical Assembly				Multi-Chip
		Luminous Intensity Min/Typ ^[1] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
55SSB	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610					
	-A (AMBER)	28/40	585					
	-G (GREEN)	40/60	565					
-PG (Pure GREEN)	12/20	555						

1. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 55SSB-R12-6 (Skandia, Swedish Slide Base, RED, 6 Chip Multi-Chip, 12Vdc at 37mA)



All dimensions are in inches(mm)
Tolerances: .xx*(x) +/- .025*(.63), .xxx*(xx) +/- .010*(.25)
Specifications are subject to change without notice.

55SSB, Multi-Chip

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products

T-1³/₄ SLIDE BASED LEDs

T5.5

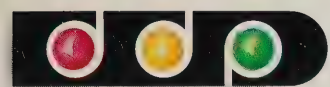
Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 220 Volts AC or DC, 220Vac Only

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
55SB		C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-B	For Diffused, Omit Letter		5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-E		A (AMBER, All Series)	5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	-U	W (Water Clear, E & U Series Only)		12	12V/18mA	5V/5mA	15V/23mA	5-15
	Series Below Do Not Require Encapsulation or Color Code:		Y (YELLOW, E & U Series Only)	12H	12V/27mA	5V/8mA	15V/36mA	5-15
	-XLP ^{[3] [4]} (Low Power, Diffused Only)			24	24V/9mA	20V/7.5mA	30V/12mA	---
	-X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only)		G (GREEN, All Series)	24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
	-LRG (Bi-Color Red /Grn, Milky Diffused Only)			28H	28V/16.5mA	15V/8mA	30V/18mA	---
	-ERB ^[4] (Blinking Red, Diffused Only)			48	48V/10mA	30V/6mA	50V/10.2mA	---
				48H	48V/15mA	30V/9mA	50V/16mA	---
	-R2K (Hi-Intensity, Water Clear Red Only)			60	60V/7mA	40V/4.5mA	65V/8mA	---
				60H	60V/12mA	40V/8mA	70V/14.5mA	---
	-R3K (Hi-Intensity, Water Clear Red Only)			110 ^[5]	110Vac 1.5RMS	---	130Vac/ 1.8RMS	130
				110H ^[5]	110Vac 3RMS	---	130Vac/ 3.9RMS	130
				220 ^[5]	220Vac 1RMS	---	250Vac/ 1.4RMS	250

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less or 110Vac or greater (55SB-BA24HD). For 110Vdc insert DC after the Electrical Assembly (55SB-G110DC), 110H and 220 are available in Vac only.
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.
5. For 110V AC or DC and 220Vac, omit Series Code. Place Encapsulation Code after Electrical Assembly, -C for Non-Diffused, omit Code for Diffused and -W for Water Clear (55SB-X110-C, 55SB-X110, 55SB-X110-W where X is R (RED), A (AMBER), Y (YELLOW) or G (GREEN)).



Data Display Products

T-1³/₄ SLIDE BASED LEDs

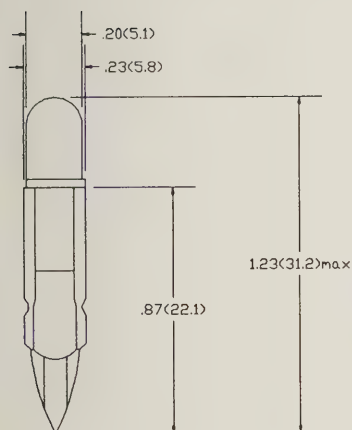
T5.5



TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 55SB-EWA24H (T5.5 Slide Base, E Series, Water Clear AMBER, 24Vdc at 17mA)
55SB-R2K220 (T5.5 Slide Base, Hi-Intensity RED, 220Vac)



55SB

All dimensions are in inches(mm)

Tolerances: .xx(.x)+/-0.25(.63), .xxx(.xx)+/-0.010(.25)

Specifications are subject to change without notice.



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, T5.5

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 110 Volts AC or DC

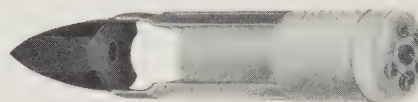
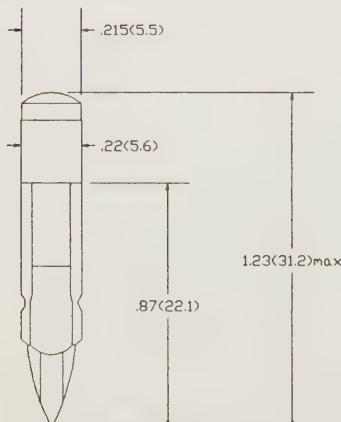
Model	Color			Electrical Assembly ⁽¹⁾				Multi-Chip
		Luminous Intensity Min/Typ ⁽²⁾ (mcd)	Peak Wave-length (nM)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
55SB	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
				28	28V/18mA	21V/11mA	30V/20mA	
	-O (ORANGE)	40/60	610	60	60V/16mA	40V/10mA	64V/18mA	
	-A (AMBER)	28/40	585	110	110Vac/ 3RMS	50Vac/ 1RMS	130Vac/ 3.5RMS	
	-G (GREEN)	40/60	565					
	-PG (Pure GREEN)	12/20	555					

1. For AC operation, insert AC after the Electrical Assembly, not required for 110Vac (55SB-ER60AC-6). For 5Vac, contact factory for Electrical Assembly data. For 110Vdc, insert DC after the Electrical Assembly (55SB-G110DC-6).
2. Luminous intensity measured at 20mA.

TO ORDER:

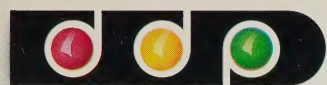
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 55SB-G15-6 (T5.5 Slide Base, GREEN, 6 Chip Multi-Chip, 15Vdc at 20mA)



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

55SB, Multi-Chip



Data Display Products

T-1³/₄ SLIDE BASED LEDs

MULTI-CHIP, NARROW BASE NO. 5

Red, Orange, Amber, Green or Pure Green

6 Chip Multi-Chip LEDs

5 to 28 Volts DC Operation

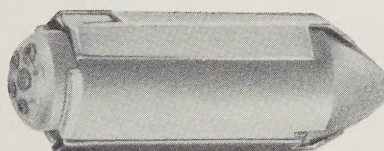
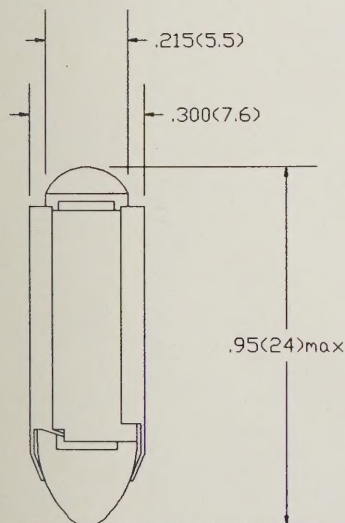
Model	Color			Electrical Assembly				Multi-Chip
		Luminous Intensity Min/Typ ^[1] (mcd)	Peak Wave-length (nm)		Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	
6TSB	-BR (Bright RED)	70/100	660	5	5V/55mA	4.8V/40mA	5.2V/70mA Green 5.4V/70mA Others	-6
	-ER (Ultra RED)	150/200	660	6	6V/55mA	4.8V/20mA	6.4V/65mA	
				12	12V/37mA	10V/25mA	12.5V/40mA	
				15	15V/20mA	14V/15mA	16V/25mA	
	-R (RED)	25/50	630	24	24V/22mA	18V/11mA	25V/24mA	
	-O (ORANGE)	40/60	610	28	28V/18mA	21V/11mA	30V/20mA	
	-A (AMBER)	28/40	585					
	-G (GREEN)	40/60	565					
-PG (Pure GREEN)	12/20	555						

1. Luminous intensity measured at 20mA.

TO ORDER:

To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 6TSB-G15-6 (Narrow Base No. 5 Slide Base, GREEN, 6 Chip Multi-Chip, 15Vdc at 20mA)



All dimensions are in inches(mm)
Tolerances: .xx*(.x) +/- .025*(.63), .xxx*(.xx) +/- .010*(.25)
Specifications are subject to change without notice.

6TSB, Multi-Chip

445 So. Douglas Street, El Segundo, CA 90245-4630

(800) 421-6815 (213) 640-0442

FAX (213) 640-7639



Data Display Products


T-1³/₄ SLIDE BASED LEDs

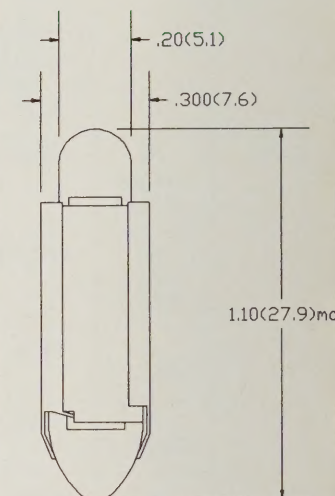
NARROW BASE NO. 5

Red, Amber, Yellow or Green

Industry Standard Slide Base

2 to 28 Volts AC or DC

Model	Series B - U Listed by Increasing Luminous Intensity	Encapsulation	Color	Electrical Assembly ^[1]				
					Design Voltage/ Current	Min Voltage/ Current	Max Voltage/ Current	Voltage Range (Vac)
6TSB	-B	C (Non-Diffused)	R (RED, All Series)	2 ^[2]	---	---	---	---
	-E		A (AMBER, All Series)	5	5V/17mA	3.6V/10mA	8V/32mA	3-6.3
	-U			5H	5V/27mA	3.6V/14mA	6V/40mA	3-5
	Series Below Do Not Require Encapsulation or Color Code:	W (Water Clear, E & U Series Only)	Y (YELLOW, E & U Series Only)	12	12V/18mA	5V/5mA	15V/23mA	5-15
			G (GREEN, All Series)	12H	12V/27mA	5V/8mA	15V/36mA	5-15
				24	24V/9mA	20V/7.5mA	30V/12mA	---
				24H	24V/17mA	15V/10mA	28V/20mA	---
				28	28V/11mA	15V/5.5mA	30V/12mA	---
	-XLP ^{[3] [4]} (Low Power, Diffused Only)	W (Water Clear, E & U Series Only)	G (GREEN, All Series)	28H	28V/16.5mA	15V/8mA	30V/18mA	
	-X-2 ^{[3] [4]} (Dual Chip, Non-Diffused Only)							
	-LRG (Bi-Color Red /Grn, Milky Diffused Only)							
	-ERB ^[4] (Blinking Red, Diffused Only)							
-R2K (Hi-Intensity, Water Clear Red Only)								
-R3K (Hi-Intensity, Water Clear Red Only)								



6TSB

1. For AC operation, insert D after the Electrical Assembly, D indicates built-in rectifier, not required for 15Vac or less (6TSB-LRG24HD).
2. External resistor required.
3. Replace X with required color R (RED), A (AMBER) or G (GREEN). Dual Chip is also available in O (ORANGE).
4. Contact factory for Electrical Assembly data.

TO ORDER:

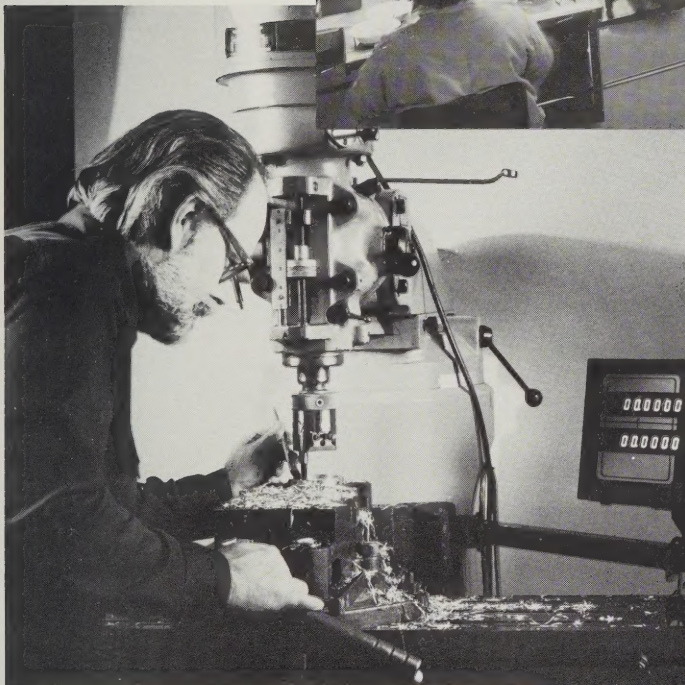
To build a part number, select one **BOLD** component from each column in above table except where noted.

Example: 6TSB-EA24H (Narrow Base No. 5 Slide Base, E Series, Diffused AMBER, 24Vdc at 17mA)

Data Display Products Manufacturing Facility El Segundo, California



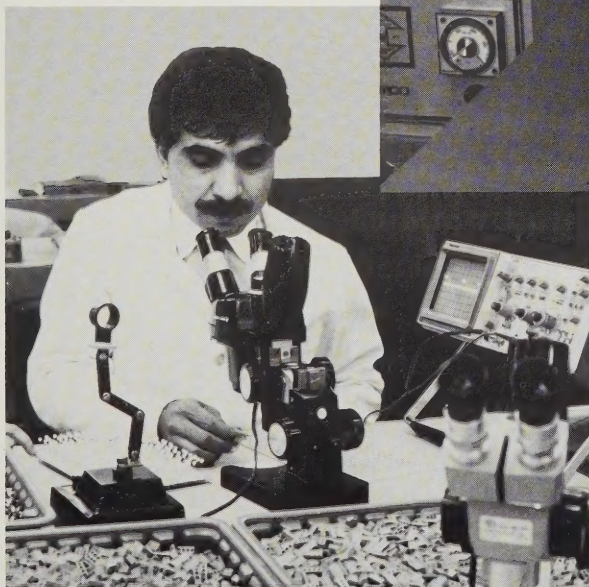
Production



Machine & Model Shop



**Thermal Stress and
Durability Test**



Quality Control



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Data Display Products

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